Telephony.

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THE PUBLIC AND SERVICE RATES; A COMMUNICATION SURVEY

In these days of easy money the people of the United States do not seem to appreciate low-priced commodities. At least that is the conclusion of many telephone men who have been in the business long enough to know by experience the difference between "then" and "now." They believe that the public do not really understand how comparatively low-priced is telephone service.

Back in the early days of the industry, Independent telephone companies concentrated their efforts on giving people service at a low cost. The Bell companies had their hands full supplying the demand of the larger cities for telephones—even at high rates—and were not interested in bringing service to the smaller towns and rural communities even at a price that would have been prohibitive.

This was the Independents' opportunity, and it was due to their energy, enterprise and hard work that the people outside of the big cities were then provided with telephone service at a price they could pay.

* * * *

These low service rates were a great boon to the American public, a large majority of whom at that time lived outside of the large centers of population. Forty years ago the flow of population had not set in towards the cities, and it was the enterprise of the Independents that brought the telephone to the masses. It educated the people to general use of the telephone, and was the principal cause of the tremendous telephone development this country has seen.

However, in these times of abundant money and easy credit, when nearly everybody has an automobile, the latest thing in radio and countless other luxuries, this great boon of cheap telephone service is little appreciated. Many a company that has been giving a community telephone service at low rates now finds it necessary to have more revenue, and learns that the public it has favored all these years is unwilling to reciprocate by accepting the needed advance in service rates.

The statesman who said "Republics are ungrateful" knew whereof he spoke, and the same idea is in the minds of many telephone men who have encountered the indifference or opposition of patrons who forget the favors of the past and selfishly ignore the fact that changed conditions compel the company to get better pay for its service.

* * * *

The main reason for this is that the public has not stopped to think about the proposition. They became accustomed to the low rates and do not consider that the same reason why they pay more for food, clothing, rent, taxes, etc., than they did 15 or 20 years ago is the very same reason why they should pay more for telephone service today. This point should be constantly emphasized by all telephone men.

Telephone service is far more valuable today than it was years ago. It means more to every business man and to every home. People realize they cannot get along without it, but they do not sufficiently realize that it costs the company producing it more to operate than it used to.

The public needs to be told again and again that telephone service is the cheapest commodity they buy, considering its essential value. In hundreds of communities it is far too cheap, and they need to be told that, too. No company can long give good service at too low rates. In fact, it owes it to its subscribers to obtain rates that will furnish them with adequate service.

Both company and public will fare better if each gives the other a square deal.

* * * *

Some interesting observations and valuable information concerning the development of communication in the United States during recent years are contained in a review of the situation just issued by the New York Trust Co. The growth of telephony, the operation of transatlantic service and the development of radio are discussed with a view as to the probable outcome of the competition between the wired and wireless business.

* * * *

The statement is made in the review that about 60 per cent of the messages sent across the Atlantic by telephone are of a social character, which is taken to indicate that while the transatlantic tolls remain so high the telegraph cables will continue to handle the bulk of the business messages between the old and new worlds.

With the perfection of the "beam radio,"

and the expectation that wireless messages may shortly have the same privacy now enjoyed only by the wire services, this review says, the important question is whether or not radio will supersede the older forms of long distance communication. The heads of both the leading telegraph companies hold the opinion that all forms of communication have an assured place in business development and will grow side by side.

This view is supported by the figures collected by the trust company, showing the gross revenues of the telephone, telegraph and radio companies for the past five years. In 1922 the gross revenues of telephone companies amounted to $684,923,537, and in 1926 they had increased to $950,000,000.

The revenues of land and ocean telegraph companies amounted to $151,858,086 in 1922, and in 1926 had increased to $162,277,000. In 1923, the revenues of the Radio Corp. of America were reported to be $26,394,790, and in 1926 they had increased to $60,437,462.

The inference is drawn from these statistics that the public demand for communication facilities will provide plenty of business for both wired and wireless, and that the growth of radio will not supplant either the telephone or the telegraph, both of which have continued to show material gains from year to year since radio development began.

* * * *

After further reviewing the phenomenal strides made in communication, the New York bank's survey adds the following comments:

"It would seem that the American public has become more and more concerned with communication of all kinds, for not only have all forms of rapid communication greatly increased in volume, but the post office revenue has grown remarkably.

The introduction of the transatlantic telephone service in January of this year very naturally created considerable speculation as to the future of both the cable and the regular transoceanic wireless communication as well.

Up to the present time, however, the transatlantic telephone, while a tremendous success from a scientific viewpoint, is not a competitive factor because of the high tolls charged and the great expense of operation. About 60 per cent of the calls over this service are social."

* * * *

These figures as to the relative revenues of telephone and telegraph companies will surprise many men in the business. They knew in a general way that the telephone has a wider field than the telegraph, but probably few realized that their respective revenues were in the ratio of practically six to one.

Considering the substantial income the telegraph regularly receives from the wire service rendered the hundreds of news papers of the country, for instance, as well as other large customers, it is astonishing to learn that the telephone earns nearly six times as much as does the telegraph both on land and under the sea.

Judging by its activities in California, the Postal Telegraph-Cable Co. is much interested in the possibilities of taking a hand in the telephone long distance business, and utilizing its lines in certain parts of the country for earning telephone tolls as well as telegraph fees.

A start has already been made in California, and the supreme court of that state has decreed that the telegraph company does not need a certificate of necessity and convenience from the state commission to engage in the telephone business.

A struggle for toll business between the telephone and telegraph groups would lead to interesting developments in the field.

Transmission Maintenance Testing

Discussion of Methods of Testing for Foreign Battery, Leakage, Crosses, Noise, Signaling, Etc., Which Are Necessary to Maintain Standard Transmission—Tests Particularly Adapted for Wire Chiefs and Managers of Small Exchanges

By Charles J. Oram

The purpose of this article is to discuss the methods of testing necessary to maintain standard transmission, particularly for small exchanges where elaborate testing instruments are not available. It is assumed, however, that a voltmeter and a Wheatstone bridge are procurable.

An attempt will be made to outline the different tests that wire chiefs and local managers should understand thoroughly and make use of. The tentative working values given at the end of the article are to be a guide only when no other standards are specified. They apply to non-repeated, non-loaded No. 12 N. B. S. gage open-wire lines which are not exposed to abnormal interference conditions.

The tests which are necessary in transmission maintenance are numerous and are:

WITH THE VOLTMETER:

1. Tests for continuity.
2. Tests for leakage.
3. Tests for crosses.
4. Tests for foreign battery.
5. Insulation resistance measurements.
6. Rough resistance measurements.

WITH THE BRIDGE:

1. Loop resistance measurements.
2. Single-wire resistance measurements.
3. Varley loop tests.
4. Murray loop tests.
5. "Open" location tests.

OTHER TESTS:

1. Talking.
2. Noise measurements.
3. Crosstalk measurements.
4. Transmission measurements.
5. Signaling.

Fig. 1 shows a simplified diagram of a voltmeter testing circuit. *V* is a voltmeter which may have any resistance; *D* is a battery which may have any voltage; *C* is shown as a key which, when operated, grounds one side of the testing battery; *S* is a shunt of such resistance that, when placed in parallel with the voltmeter, the combined resistance will be either 200 or 1,000 ohms; and *A* and *B* are the terminals to which the line under test is connected.

Tests for Continuity

(a) To test for continuity, have the distant end of the line short-circuited and attach the near end to the terminals, *A* and *B*. This generally is done by inserting a plug in the jack of that line. If the line is not open, the deflection of the voltmeter needle will show it. If it is open, it is necessary to find which side is at fault.

(b) To test the continuity of a single wire, operate the key, *C*, and have both sides of the pair grounded at the distant end. The deflection of the voltmeter needle will indicate if the line is open.

To test the continuity of the other side, take the wire off of terminal *A* and put the one which is on *B* in its place. This is generally done by operating a "reverse" key in the voltmeter testing circuit.

Tests for Leakage.

(a) To test for leakage between wires, the procedure is similar to that given under

a in "Tests for Continuity." In this case, however, the line must be open and not short-circuited at the distant end.

(b) To test for leakage between either wire to ground, proceed as in *b* under "Tests for Continuity," except that the wires must be open, not grounded at the distant end.

Tests for Crosses

Generally the line crossed is noisy, and the one with which it is crossed is also noisy. To find out which side is crossed, connect one noisy side to terminals *A* and *B* and ground one side of the other line. Then proceed as in *b* under "Tests for Leakage." If the voltmeter does not show an abnormal deflection, then take the ground off and put it on the other side of that line.

In common battery exchanges, a line reported crossed is either grounded or carries battery from the line with which it is crossed. If it is grounded, the fault will be noticed when testing for leakage. If it carries battery, it will be noticed when testing for foreign battery.

Tests for Foreign Battery.

In the test the battery, *D*, is cut out and the circuit completed by putting a conductor for foreign battery in its place. This is done by operating a battery cut-off key.

The procedure will now be the same as that under "Tests for Leakage" and the needle of the voltmeter will be deflected if there is any foreign potential on the line.

Insulation Resistance Measurements

The tests for leakage are really measurements of insulation resistance, but insulation resistance is generally spoken of in terms of megohms per mile. Hence the method of changing the voltmeter deflection into the correct terms of megohms per mile will be outlined.

In stating the insulation conditions of a

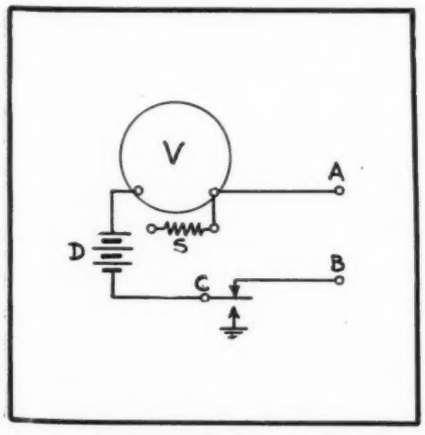


Fig. 1. Simplified Diagram of a Voltmeter Testing Circuit.

line, the following three values must be found:

1. Resistance between wires.
2. Resistance between ring and ground.
3. Resistance between tip and ground.

The connections are the same as those given under "Tests for Leakage" head.

Note the reading on the voltmeter. Then, to find the resistance, multiply the "resistance of the voltmeter" by the "voltage of the testing battery." Divide this product by the "voltmeter reading," and subtract the "resistance of the voltmeter."

Suppose the voltmeter to have a resistance of 10,000 ohms, the battery voltage to be 30 volts and the voltmeter reading to be 5. Then the resistance between wires or between wire and ground would be

$(10{,}000 \times 30)/5 - 10{,}000 = 50{,}000$ ohms.

To bring this to megohms per mile, multiply the "insulation resistance" by the "number of miles of circuit," and divide this product by 1,000,000 or (Insulation Resistance × No. of miles) ÷ 1,000,000. In the case cited, supposing the distance to be 40 miles:

$$\frac{50{,}000 \times 40}{1{,}000{,}000} = 2 \text{ megohms per mile.}$$

Rough Resistance Measurements

Referring to Fig. 1, connect the shunt to the voltmeter. This is generally done by throwing a key marked "shunt" in the voltmeter testing circuit. Connect the resistance to be measured to *A* and *B*.

The method of calculating the resistance of the unknown loop is the same as that for insulation resistance. The shunt has the effect of bringing the voltmeter resistance to either 200 or 1,000 ohms.

Suppose the shunt to be of 200 ohms and the voltmeter deflection to be 5, then the resistance being measured is:

$(200 \times 30))/5 - 200 = 1{,}000$ ohms.

Use of the Wheatstone Bridge

Referring to Fig. 2 showing the schematic circuit of the Wheatstone bridge, *A* and *B* are the ratio arms. *R* is the adjustable resistance, X^1 and X^2 are two binding posts. *G* is the galvanometer. *D* is the battery, which should not exceed 6 volts, unless some special test is to be made where there is a high resistance fault, and *E* and *C* are galvanometer and battery keys respectively.

Loop Resistance Measurements

Connect the line with far end short-circuited to the binding posts marked X^1 and X^2. Adjust the resistance, *R*, until, with *E* and *C* closed, there is no deflection of the galvanometer needle.

Then to find the resistance under test, multiply the values of *R* and *A* and divide by the value of *B*.

Single-Wire Resistance Measurements.

Insulation and single-wire resistance measurements are the two most important tests used in toll line maintenance, as they are the ones which show whether or not there is any unbalance in the line.

Single-wire resistance may be measured in several ways and, as we are concerned with unbalance more than anything else, it would be well to consider this section of the article as dealing with "conductor resistance unbalance."

There are three different methods of determining conductor resistance unbalance, as follows:

1. Three-wire test, used when three or more wires are available.
2. Murray loop test, used when two or more wires are available.

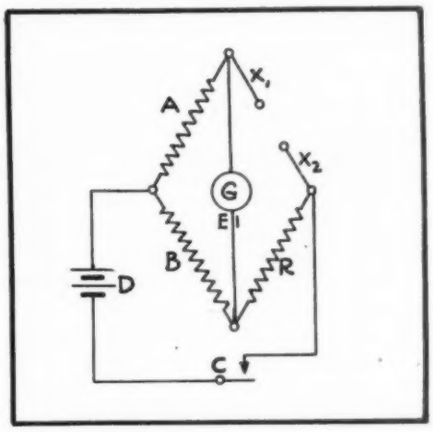


Fig. 2. The Schematic Circuit of the Wheatstone Bridge.

3. Varley loop test, used when two or more wires are available.

Three-Wire Test.

(a) The procedure when making test No. 1 is:

Call the pair under test, *a* and *b*, and the third wire, *c*.

Cross both sides of the pair under test with *c* at the far end. Measure the resistance of the pair as mentioned under loop resistance measurements, and call this value $A + B$.

Measure the resistance of *A and C*, and call this value $A + C$.

Measure the resistance of *B and C*, and call this value $B + C$.

Add the three results together and divide by 2. From this subtract $B + C$ to find the resistance of *A*, and $A + C$ to find the resistance of *B*.

To find the amount of unbalance, subtract the "resistance of one side of the pair" from the "resistance of the other side."

Now that the values of *A* and *B* are known, it is a simple matter to find the resistance of any other wire by measuring loops, one side of which is formed by either *A or B*, and subtracting the known resistance.

Murray Loop Test.

First measure the resistance of the loop, and call the result *L*.

In Fig. 3, *A* is a fixed resistance, *R* is the adjustable arm. Both sides of the line are grounded at the distant end.

Connect pair under test as shown in Fig. 3. Balance up the bridge by adjusting the rheostat, *R*.

To find the amount of unbalance, subtract *R* from *A*, multiply this by the loop resistance, and divide the result by $R + A$, or

$$L\ (A - R)/(A + R)$$

or, supposing the value of A to be 100, the value of R to be 102, and the loop resistance, L, to be 202, then

$$202 \times (100 - 102)/202 = -2 \text{ ohms}$$

When the result is negative, the resistance of the tip side is greater than that of the ring.

Varley Loop Test.

Measure the resistance of the loop and call this L.

Connect the pair under test to the bridge as shown in Fig. 4.

Balance the bridge by adjusting rheostat, R, until the galvanometer shows no deflection. Then the amount of unbalance is

$$2RA + L(A - B)/(A + B)$$

Where A and B are equal, the unbalance can be read directly from the R arm, and the side connected to R has less resistance than the other.

Open Location Tests.

Tests for location of opens may best be made with the capacity bridge. The procedure is as follows:

Open two lines at the distant test panel, one of which is the faulty line. Measure the capacity of the good line and call this C. Measure the capacity of the bad line and call this C_2.

Then, to find the distance to the fault, multiply C_2 by the number of miles to the distant test panel, and divide this result by C_1 or $(C_2 \times \text{No. of miles})/C_1 = \text{No. of miles to the fault.}$

Talking Tests.

As it is assumed that the instruments used for measuring noise, crosstalk, and transmission units are not available to the man in the small office, he will have to do the best he can with an ordinary telephone circuit.

Tests for transmission should be made from one standard subscriber's set over the circuit under test to a standard subscriber's set at the distant end.

The quality of transmission should be noted; clarity of reception is even more desirable than loudness. Do not be concerned with the volume of sound reproduced in the receiver, but rather with the ease with which the distant speaker can be understood.

As there is no instrument on hand which can be used to measure the amount of noise, the only way to make these tests at present is to listen on the line and use your own judgment as to whether the line is noisy or not.

Try to get an idea of the ratio of the noise to the talking current. If it is necessary to stop talking in order to hear the noise, then the ratio of voice current to noise current is high and as it should be. But if, while listening to the distant party, you are always conscious of the noise on the circuit, you may know that it will interfere with transmission.

When listening for noise, the transmitters should be cut off in order to eliminate any room noise that may be present.

The notes given apply equally well to crosstalk. This test requires that one person talk into one circuit while another listens on a different circuit. It is quite easy to dispense with the services of the first party by putting a tone on the disturbing circuit.

Crosstalk between phantom and side circuit, and between each side circuit, should be noted.

After the tests mentioned have been made, the line should be rung over to ascertain whether or not the signaling apparatus is functioning satisfactorily.

One short ring should bring in the signal at the distant office.

This is as far as transmission maintenance may be discussed in this article. The rest of the long story deals with testing for irregularities other than those mentioned, location of faults, clearing trouble and routine testing.

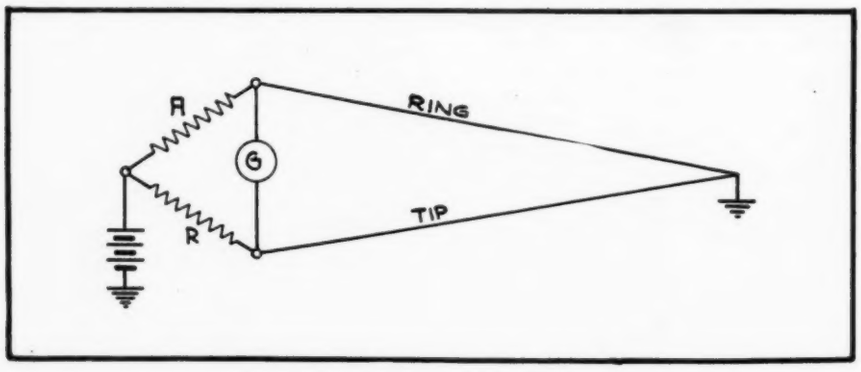


Fig. 3. The Murray Loop Test.

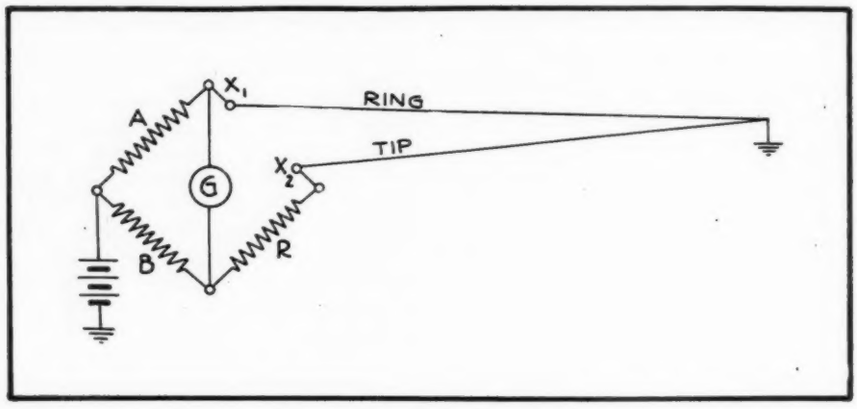


Fig. 4. The Varley Loop Test.

Associated with the toll line are various other kinds of plant on which tests must be made in order to keep the transmission up to standard. These are outside the scope of this article but a fairly representative list is given, because each one forms a link in the chain and should be kept in mind:

1. Transmitter and receiver efficiency.
2. Subscriber set circuits.
3. Leakage, current supply or resistance of subscribers' loops.
4. Central office wiring and heat coils.
5. Toll switching trunk apparatus.
6. Trunk conductors.
7. Toll cord circuits.
8. Operators' sets and telephone circuits.
9. Repeating coils and other apparatus between the line jacks on the toll switchboard and the protectors.
10. Protectors.
11. Toll cables.
12. Connecting boxes.

The following is a list of standards which will be a guide when checking up on toll lines of this class:

1. There should not be more than 20 per cent unbalance in the insulation resistance of any two wires in a phantom group.

2. The conductor resistance unbalance in any "section" of a phantom circuit should not be more than three ohms.

3. In any section of a side circuit used to build up a phantom, one wire should not have two ohms more or less resistance than the other.

4. In any section of a non-phantomed circuit, one wire should not have five ohms more or less resistance than the other.

(Note: The sections referred to are 100-mile sections.)

5. The insulation resistance between any wire and any other wire or the ground should not be less than 100 megohms per mile.

Prices in the Metal Markets.

New York, June 27.—Copper.—Quiet; electrolytic, spot and futures, 12.50@ 12.62½c. Tin—Easy; spot and nearby, $66.50; August, $64.50. Iron—Steady and unchanged. Lead—Steady; spot, 6.40c.

Sells Newspaper Space by Telephone

Lincoln State Journal, a Pioneer Nebraska Paper, Uses Long Distance Extensively for Selling Advertising Space to Concerns Out in State—Switchboard Operated Day and Night—Published by Courtesy of Lincoln Telephone News

When you take up the newspaper and scan the advertising columns, you probably rarely stop to think of the effort necessary and the methods used in collecting such a fund of news of value to the business man and the shopper. When you find an ad describing an inviting picnic ground within a couple of hours' drive from your home town, you, very likely, do not pause to consider how the ad found its way into the columns of the newspaper.

If you do stop to figure it out, no doubt you visualize the advertising representative of the newspaper driving across the country or taking the train to the town to sell space to the proprietor of the picnic grounds. Then, you see him sitting around for an hour or more in the office waiting for an interview with the advertising manager of the firm. You may even imagine a longer delay, for the man he wishes to see might be out of town on this particular day.

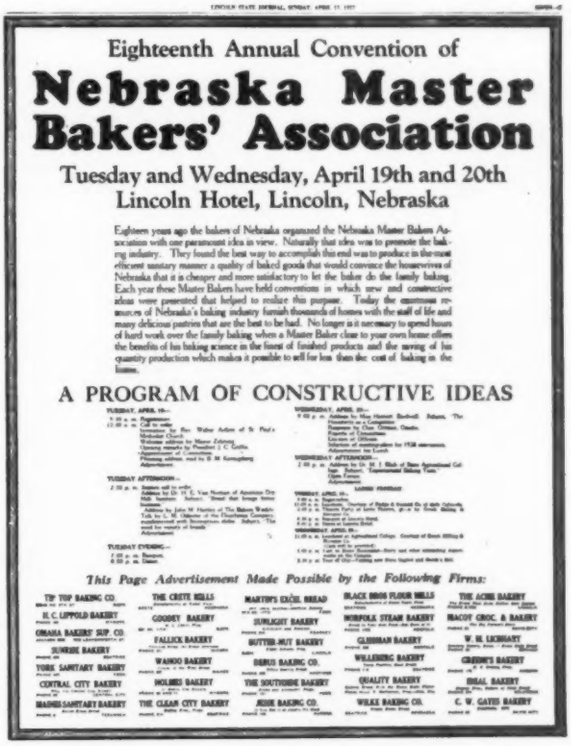
Such a picture could have been correctly drawn of the space-selling methods of a few years ago, but as more and more speedy work is constantly being demanded in the modern newspaper plant, more rapid communication between outside advertisers and the composing rooms has become imperative.

The telephone is indispensable to the modern newspaper plant, and selling advertising space to dealers and other business men out in the state, without leaving the office, is being done by using the long distance wires. No better example of the efficiency of this method of selling space can be found than has been worked out by the advertising staff of the Lincoln State Journal, where the long distance telephone plays a big part in selling advertising.

The Journal was first among the newspapers in that section to try out the long distance selling plan, and, according to the advertising manager, Alfred A. DuTeau, has found the method of the greatest efficiency and economy in selling Journal space to concerns out in the state. Instead of having solicitors leave the plant and spend days traveling to the towns, three of them can sit at their desks and cover a larger territory than three times as many men could cover by traveling.

A call is put in and, in a few minutes of conversation, the buyer is informed of the space that is open to him. If he has questions, he can be given an immediate answer by the solicitor.

The ad is on its way to the composing room in less time than it would take for the solicitor to look up a train schedule and buy a ticket for the town.



Eighteenth Annual Convention of

Nebraska Master Bakers' Association

Tuesday and Wednesday, April 19th and 20th
Lincoln Hotel, Lincoln, Nebraska

Eighteen years ago the bakers of Nebraska organized the Nebraska Master Bakers Association with one paramount idea in view. Naturally that idea was to promote the baking industry. They found the best way to accomplish this end was to produce in the most efficient sanitary manner a quality of baked goods that would convince the housewives of Nebraska that it is cheaper and more satisfactory to let the baker do the family baking. Each year these Master Bakers have held conventions in which new and constructive ideas were presented that helped to realize this purpose. Today the combinate resources of Nebraska's baking industry furnish thousands of homes with the staff of life and many delicious pastries that are the best to be had. No longer is it necessary to spend hours of hard work over the family baking when a Master Baker close to your own home offers the benefits of his baking science in the finest of finished products and the saving of his quantity production which makes it possible to sell for less than the cost of baking in the home.

A PROGRAM OF CONSTRUCTIVE IDEAS

This Page Advertisement Made Possible by the Following Firms:

TIP TOP BAKING CO. — THE CRETE MILLS — MARTIN'S EXCEL BREAD — BLACK HILLS FLOUR MILLS — THE ACME BAKERY
H. C. LIPPOLD BAKERY — GOODEY BAKERY — SUNLIGHT BAKERY — NORFOLK STEAM BAKERY — HACOT CROC. & BAKERY
OMAHA BAKERS' SUP. CO. — FALLICK BAKERY — BUTTER-NUT BAKERY — GLIDDEN BAKERY — W. H. LICHGEY
SUNRISE BAKERY — WAHOO BAKERY — BERUS BAKING CO. — WILLSBORO BAKERY — GRIDW'S BAKERY
YORK SANITARY BAKERY — CENTRAL CITY BAKERY — HOLMES BAKERY — THE SOUTHSIDE BAKERY — QUALITY BAKERY — IDEAL BAKERY
MADRID SANITARY BAKERY — THE CLEAN CITY BAKERY — RIDE BAKING CO. — WILKE BAKING CO. — C. W. GATES BAKERY

The Cooperation of 31 Bakeries in Nebraska in the Publishing of This Full Page Ad in the Lincoln State Journal, Representative of the Many Sold by Telephone, Was Secured by Use of Long Distance.

The use of the long distance telephone enables the advertising solicitors to reach the out-of-town concerns, and at the same time cover their runs in the home town. They can give information to dealers in all parts of the state regarding space that is available in the newspaper, and also meet their appointments with local firms. The solicitors like the service because they can cover more territory in a day and arrive in time to attend their wedding anniversaries, or other important social events, in the evenings.

The distance calling has been found to have a favorable effect upon persons whose business has been solicited by this method. Business men feel complimented because extra pains have been taken to give them a chance to make use of the space in the State Journal, and they appreciate the regard given their time when tolls are paid to avoid a longer, personal interview.

"Business and professional men are very busy and it is surprising to find how much they appreciate the few sec-

Earl Cook and Ed Kelly Each Employ the Service of the Long Distance Telephone in Securing Advertisements from Companies Out of Town.

onds it takes to present a proposition on the telephone rather than in person," Mr. DuTeau, the advertising manager, said when he was approached for an interview on space selling by telephone. "However, we have found this regard for time carried to extremes sometimes to our disadvantage.

"But we find, in newspaper selling, that there are certain features that are so clearly outlined and so well understood that they call for almost instant response of 'yes' or 'no' from the buyer who appreciates the saving of time when he is called on the telephone rather than seen by the solicitor regarding the matter.

Here Are Miss Mildred Wright, Clarence Cooper and A. D. DuTeau, Advertising Manager of the Lincoln State Journal, Lincoln, Neb. In the Oval Is Pictured Adelbert B. Cline, Assistant Advertising Manager, Talking to a Telephone Prospect.

We have found the long distance telephone the most effectual means of covering the territory and making our space available to distant firms who wish to use it. In the past couple of years, particularly, some business has developed so rapidly that it has been impossible to cope with conditions through personal contact. Naturally, due to this fact, it would have been impossible for us to have handled certain business that we had, if it had not been for the long distance telephone.

Newspaper advertising is of such a nature that it is possible to lay plans tonight and present them in print tomorrow. Campaigns do not have to be planned in advance as they do for magazines. For instance, a firm can avoid unfavorable weather conditions when making announcements, due to the adaptability of the newspaper to present advertising to the public on short notice. The use of the long distance telephone increases that service.

On the whole, the importance of the long distance telephone has been multiplied many times in the past few years. We use it much more than we ever have before, and for certain features we depend entirely on long distance service. Since the newspaper is so well adapted to meet quick changes, the long distance telephone is indispensable in selling space. We have been able to use it so extensively in our selling because the Journal is so well known over the territory."

Three members of the advertising staff of the Journal, Adelbert B. Cline, Earl Cook, and Ed Kelly, who do most of the long distance selling of Journal space, give a fine endorsement to this service. They believe that the long distance lines cover a wider field and offer quicker service than could possibly be handled in any other way.

"Long distance telephone selling has unlimited possibilities," said Mr. Cline, talking with the interviewer. "In newspaper work, where speed is most necessary, the telephone puts one in immediate touch with the entire territory. Of course, it is essential that you represent a well-known institution of high standing since the man you are in communication with is buying on good faith.

"Like the old-time carpet-bagger, who spent several hours, or even a day, in selling a customer in a town, the newspaper road solicitor will soon be passé. A good man at the end of the wire, who will state his proposition in a brief, pointed way, without all the excess baggage attached, will save time and money for his firm and for the man with whom he is dealing. High-powered trade letters, or even wires, are not as effective as long distance calls, because they lack the touch of human contact. Quite often, too, questions arise that can be settled quickly.

The Journal advertising department is one of the few of its kind in the country that has carried out this program on a large scale and to a successful degree.

"There are several advantages in favor of the long distance method of selling newspaper space," said Mr. Cook. "It's a time-saver, as it enables you to gain an immediate interview with a man instead of waiting around in his office to see him, or perhaps chasing all over town to find him. By using the long distance wires, you can get into communication with him almost immediately. Usually a conclusion is reached and the interview closed in a few minutes.

"It saves time for the business man and for the newspaper salesman. To the newspaper with a wide circulation, the long distance telephone offers a productive field of sales."

"I like it," was Mr. Kelly's comment. "It takes only a few minutes to sell space over the long distance telephone if the proposition is a simple one; a complicated matter, naturally, requires longer time. In presenting many propositions, it is much easier to get into communication with a man over long distance telephone than it is to see him personally. You are likely to waste time getting to him, whereas over the telephone you can complete the transaction in a few minutes, when the dealer needs only two seconds to say 'yes' or 'no.' It saves time for him as well as the salesman, and business men like to be called rather than interviewed.

"The long distance conversation offers an opportunity, too, to take up and settle questions quickly. Often, you can follow a telephone conversation with a letter clearing up discussions while the arguments are fresh in his mind.

I find that many business men out in the state like to run their ads in the State Journal. I like the long distance method because one can make so many friends over the telephone.

I've sold probably 500 concerns over the telephone in filling space in the concrete pages that have been running the past year. I've sold one man each time the page ran. Although we wouldn't recognize each other if we should meet on the street, he calls me 'Ed' and I call him by his first name. I feel I wouldn't be a stranger in many towns in the state because I have so many telephone friends in them.

Telephone selling is fast coverage and this is made possible by the fine cooperation we get from the telephone operators. In all of my selling I have had the wonderful cooperation of the Journal operator and all the others who take part in putting the calls through.

Many times I have put in a call to a man in his home town and talked to him in Omaha or some other town. The operators combine in the search for the party without bothering me about it. They are always pleasing and obliging and make it their business to connect you with your party wherever he may be found."

Traffic Problems of Small Offices

Organization One of Important Problems Involved in Successful Operation of Small Exchanges—Working Conditions and Selection of Operators Play Great Part—Address Delivered at Nebraska Telephone Association Convention

By R. S. Brewster

Traffic Superintendent, Lincoln Telephone & Telegraph Co., Lincoln, Neb.

The successful operation of a small exchange presents many problems—some very difficult to solve.

I believe that improvement of present small exchange conditions will come about, not through a single change of method but rather by means of a number of changes. There is the commercial side of the situation of securing an adequate rate, the better maintenance by the plant department with but slight increase in cost, and the traffic department by increasing the efficiency of the operating people and in bettering the service to the subscribers without increasing but slightly the cost.

You will agree with me, I believe, when I say that successfully dealing with problems confronting the operating people at the small exchanges will at least partially reduce the general problem of small exchange operation. It is, therefore, a matter inviting our attention and is of considerable importance. In using this word "Importance" here, I am reminded of an analogy I once heard comparing a telephone organization with a circus.

It was said that the publicity department goes out in advance and posts the bills; the contract department arranges for the food, supplies and the grounds and takes in the money; the plant department places the equipment on the grounds and raises the tents; and the traffic department is responsible for the performance.

Presumably I should confess that this analogy was made by a traffic man, but the traffic work is important, and so are the other activities. I think they are all of equal importance, for none can operate alone. Together they have put up the milestones of progress which we view with pardonable pride and satisfaction. Let us hope that this work will continue and that, by careful thought and attention given by us to the various problems, we will do our part in this essential industry.

Let us start immediately to apply ourselves in an effort to solve the small exchange problem. It is your problem and mine. However, we can meet it, or we can avoid it—that is, perhaps, one of the reasons why it is has not been taken care of. What I mean to say is that a small exchange organization, the traffic portion especially, will run itself because they do do it; but, generally speaking, it is something like the dog wagging its tail—no one gets anything out of it but the dog.

The small exchange problem is recognized everywhere. When telephone people get together in conference or in convention, discussion swings to the small exchange and to rural telephone service. And it should; things are not what they should be. When you consider that this concerns 124,000 of the 248,000 telephones in the state of Nebraska—which is, roughly speaking, one-half of the total stations—it is high time that we were at work on the trouble. This large number of subscribers is not getting the telephone service to which they are entitled. That this is true, I believe, requires no argument.

The telephone was first in the field—it was before the rural delivery, the automobile, electric lights to rural communities, and the radio. Times have gone ahead, and so have large telephone exchange operations; but small exchange and rural-line service has been at a standstill. These people are not getting the service to which they are entitled. Regardless of the reasons which we may give, it is our fault—we have not done our job, or, at best, have only done it partially.

It is admitted that very few small exchanges are making any money, and very few are paying a full return on the investment. I can find no reason, nor can I advance one, why it is not possible to give a grade of service in the small exchange which would not justify a self-maintaining rate.

Many companies are still giving free toll service between exchanges. The thing to do in such cases is to make the service first class and then charge for it. It is the duty of every manager in this day to plan ahead for improvements in the equipment; also for the improvement of the service, and the securing of adequate rates. See that the service is what it should be, and then obtain a rate consistent with that class of service.

My hobby is service and I am vitally interested in giving good service. In this day of uplift and reform, there has been much said about service. In every line of endeavor—from church work to merchandising—the word has been found useful, and in many cases it has been misused. Like all things we hear so much about, there is danger that it may lose its significance.

However, the man or company who honestly tries to serve the public will not lack reward. Of course, the man or company must get the fact across to the public; in other words, they must know and realize that they are receiving real service. They must be convinced—sold or whatever you may call it—that is a part of the real service.

Now let us consider organization; the matter of organizing and training the people who are to handle the traffic at a small exchange—in other words, "Traffic Problems at Small Offices." To me these are your real problems.

Many still hold to the idea that improved equipment is the main requisite to satisfactory service. However, my experience has convinced me that there is something just as important in serving a small community, and that is the type or class of employe you secure.

Generally speaking, you can get the right type and kind of operators, providing the working conditions and surroundings are what they should be. Comfortable, neat-appearing, and above all, clean office or

residence quarters, as it may be, is a controlling item.

Such quarters should be provided, regardless of whether the exchange is located in a store or in a residence building. The money thus spent will be repaid many times by enabling you to secure and retain the services of the proper kind of operating people. As a matter of fact, this cost is usually small.

In choosing the operator for a small exchange, the utmost care and prudence should be exercised. Many managers give this matter too little attention. They are laboring under an idea that almost anybody can operate a small switchboard. They can, insofar as the mechanical feature of putting up and taking down connections are concerned, but what about handling the public, commonly called our subscribers? It takes more tact and talent on the part of a small exchange operator than one operating in a large exchange, because she comes in personal contact more often with the subscriber.

Remember that, as a rule, when analyzed correctly, the subscriber is rather egotistical and will never be as favorably impressed by the operator's own superior knowledge, as he will be by the intelligent use of the information he has furnished. Therefore, an operator is required who can develop the intelligence she possesses to the fullest extent.

In choosing an employe, I believe I am fair when I say that we should demand of her, a fair education, a good personality, loyalty, integrity a high character and reputation.

Let us consider the selection of this operator for one of our smaller exchanges:

First, as I have said, she must possess a pleasing personality, because she not only cares for the switchboard but she must meet and deal directly with your subscribers and customers. By customers, I mean the general public.

Second, she must be of high standing to meet the approval of any community.

She should possess qualities which, with proper training, will enable her to pass on to subscribers the company policies which are so vital to its success. An employe, by her courteous and tactful dealings with the public, can do more in promoting good will than can be measured in dollars and cents.

The good will of a subscriber depends many times upon the treatment he receives from the operator who can induce a cheery little tone in her voice; imaginable as it may be, yet we marvel at the way in which she overcomes little irritations and relative obstacles in her path, as well as in the subscriber's path, and makes everybody at peace with the world. The happiest part

TRIPPING STONES

By Miss Anne Barnes,

Traveling Chief Operator, Iowa Independent Telephone Association, Des Moines, Iowa

I sometimes think we over-estimate the valor of those who meet emergencies bravely and unstintingly. Why shouldn't they? What would we say of them if they deserted their post of duty at a critical time? "Cowards!" we would say.

But people usually *do* meet emergencies. Where we fail, is more often in the ordinary details of a day's procedure. Such small details as this, for example:

A little old lady at the cashier's window puts her money on the counter, and we scoop it up without a "Thank you" as we shove out her receipt and resume our work, or a conversation with someone in the room. Merely one trifling detail of many to us.

Perhaps, she is the only one we failed to thank. It doesn't matter how it looked to us, but it does matter greatly how it looked to her. This may be the day she has set aside for doing other things—to come down town to pay such bills as the telephone and light bills. This money, tucked away in a special corner of her purse, represents a small part of her John's salary, put there against the day the bills are due.

When we claw up her money unconcernedly and push out a receipt, without a "Thank you," we have miserably failed because we have belittled the transaction to the poor little lady. Perhaps, she doesn't see much money, and what she does handle is for paying bills

Now, I am thinking of the trifling cares and frets which we so often allow to take possession of us; how we do not try holding our temper under provocation; how we even risk losing customers for our company by letting our temper flare up.

When we look at a stack of tickets, we sometimes say: "There's a good day's work." I wonder if we can say also: "It is a day's *good* work." It is not a day's good work unless every transaction recorded on the tickets in the stack represents *good public relations* between us and our patrons, and other operators.

Oh, yes, we meet the emergencies without flinching. Sometimes we are cited for bravery, presented with a medal, and given fitting publicity. But it seems to me that there should be some merit attributed to those who are able to meet the multitude of details in an average day's living with poise and sweetness.

Now, I am thinking of a little woman with four small children, whom I saw on the train today. Daddy was in the smoker. I knew he belonged to them, because at noon he came in to lunch with them, from a big basket filled with food which the tired little mother had prepared and packed. The reason I knew it was her work was that she knew just where to put her hands on certain foods, spoons, knives, etc.

I said "tired little mother," because I noticed she never had one moment free for herself, not even at lunch. She even skinned Daddy's orange because he had a sore finger.

He was a big handsome fellow and she seemed very proud of him. I heard her tell someone that he had been cited for bravery. I tried to see whether he wore a medal, but he wasn't around long enough.

That whole day it was first one thing and then another for the mother. She no sooner settled an argument between Jack and Brother, than Sister had a nose bleed; Brother wanted a drink, Baby, a cookie, and so on all through the first day of Mother's vacation. Daddy—brave Daddy—stayed in the smoker until his little family, all tired out, hot and gummy-looking, bawled themselves to sleep.

"Oh, well," someone says, "she was used to it." But I believe there should have been two people in that little crowd cited for bravery. Daddy, for meeting his emergency—and the little mother for meeting the details of her first day's vacation so patiently and sweetly; and doubtless, all the rest of her days in the same manner.

about it is the sunshine that will follow all through her day's work, and it helps to lighten the load of our subscriber.

A tactful employe will personally endeavor to maintain a feeling of good will throughout all her dealings with the public. In cases of disconnections, poor transmission complaints, and those against service rendered, a tactful operator will intelligently make allowances for the public's lack of knowledge concerning the true points of the case.

Above all things, she will strive to avoid leaving with the subscriber, impressions detrimental to the service as she will if she is curt, irritable and inclined to shift the blame to them. Insofar as the telephone subscriber is concerned, the employe is the company.

In fact, the operator at a small exchange must possess unusual ability. This operator, ideal as she may appear to you, can be exemplified in reality by telling some of the outstanding achievements of a chief operator of ours, who served us for many years and who was recently placed on a pension.

During her many years as chief operator in charge of one of our exchanges, she did not have a single unpaid account when she closed the books at the end of each month; nor was there ever reported one single complaint of the personal service she rendered the people of her community. This speaks for itself. It shows her loyalty and devotion to her work and to the company.

It is a pleasure to have working for you a person of such character and ability, who stands so high in the community in which they live and serve. The person to whom I refer is Mrs. Clara B. Eckles, formerly of Thayer, Neb.

She was employed under an arrangement which we have found works out very nicely and with which we are well satisfied. It is the locating of the exchange in a desirable residence property, leased or owned by the telephone company, and then employing as operating people a family that will make their home at the exchange. This person is employed with the understanding that she will furnish such other operating people as may be required, as well as the light and heat for the building.

We prefer a widow with a couple of daughters, or a son and a daughter, the main requisite being that they desire the employment as a means of livelihood and a comfortable home. We have been very fortunate in obtaining satisfactory people with sufficient education to take care of these agencies for us.

We have found by experience that a good policy to follow is that of employing people who live in the community to be served. You can almost always find a person or family in a small town possessing the proper qualifications who is desirous of such work. They know the habits, customs and traditions of the people of that community, and this goes a long way in promoting good will and in giving general satisfaction on the part of the patron.

Now that we have selected an operator, let us consider the necessary training. She must be trained to be prompt, accurate, and to render a reliable service. In addition to this, she must have a knowledge and training in toll and local operating practices. She must know something of the principles underlying toll rates and toll classifications.

The matter of toll service may be of no concern to those of you who do not own toll circuits. Disconnect your exchange entirely from outside toll connections and see what your subscribers would do and say.

Toll service, to a great number of your subscribers, is just as important as your local service. This fact alone is sufficient to urge you and your people to know the details of such service, and be in a position to advise your patrons regarding toll rates as well as handling their calls satisfactory.

Then there is the question of toll revenue derived. Toll settlements are generally fixed on the basis of 25 per cent of the originating traffic. For example, if your exchange originates $200 per month worth of toll business, you have earned $50, and without an appreciable investment. Compare this $50 toll revenue with net station revenue of the same amount and see what you invest to get it.

Toll service, as you see, is just as much a part of the telephone business as the securing of contracts for local service. This being undeniable, it is just "good business" to have your toll service so good that people will continue to use it and increase its use. Have your people know toll operating practice as put out by the United States Independent Telephone Association, or that which can be obtained from the toll line company with which your exchange connects.

It is up to us now to carry to completion the vision that Dr. Alexander Graham Bell had when he invented the telephone. In order to do this, constructive ability is required. And this means something more than handiwork, something more than the power to utilize in everyday efforts one's gifts of artistry or imagination.

We may have all these and yet fail to attain great things. Added to these must be that faculty which goes into making a builder, one who can organize, develop and carry to completion a vision of usefulness and of worthy service. This vision may be one of social betterment; it may relate to government; it may be directed to industrial expansion, where in the past two generations more has been accomplished than in the world's previous history.

Ours is directed to industrial expansion. If we are to aid in it, it means we must now help develop a better grade of telephone service in the rural communities. To do this we must give them the right kind of service. This can only be accomplished by the proper sort of people. To get the right kind of people, we must provide the right kind of surroundings and environment and training.

Now summing up: Take care of your traffic end of the small office problem by

First, providing suitable quarters.

Second, selecting the proper operating people.

Third, see that they have the knowledge necessary to do the work properly.

Fourth, by keeping in intimate touch with service conditions.

In conclusion, my ideal in the way of a small-exchange operator is one who is intelligent, courteous, has a general knowledge of company policy, a knowledge of toll practice, classification and rates, is loyal through and through and who places service to her subscribers above all else.

Long Island, New Area Created by New York Telephone Co.

The establishing of a separate operating area comprising the whole of Long Island has been announced by the New York Telephone Co. The change of organization has been made, according to the announcement, on order to improve service and increase efficiency in Brooklyn, Queens, and rural Long Island.

The change establishes the Long Island area on the same footing with the three previously established operating areas—down-state New York, up-state New York and New Jersey.

According to officials of the telephone company, the rapid growth of the telephone system throughout Long Island in the last seven years made the change necessary. There are now, according to the company, 599,338 telephones on Long Island, as compared to 246,234 at the beginning of 1920. Last year alone there was an increase of over 50,000 instruments in the area. J. J. Robinson will be general manager of the new area.

Persians Not Great Users of Telephone Service.

The only development of interest in the telephone system of Persia during 1926 was the replacement of the autumn of the obsolete transmitting and receiving instruments in Teheran by modern, metal, wall-type common battery instruments, according to U. S. Consul O. N. Neilson.

On January 1, 1926, the Persian Telephone Co. owned 24 central offices and 1,000 miles of long distance or interurban wire. Both figures are unchanged from January 1, 1925. On January 1, 1926, there were in use 2,800 instruments and 8,500 calls were made in the preceding 12 months. On January 1, 1925, the number of instruments was 2,639; the number of calls in the preceding 12 months, 8,000.

Proper Telephone Soldering Methods

Fundamental Laws Which Must Be Borne in Mind to Secure Perfection in Art of Soldering in Telephone Exchanges—Irons Should Be Kept in First Class Condition—Practical Pointers for Making Good Soldered Connections

By B. C. Burden,

Plant Manager, Independent Telephone Co., Red Cloud, Neb.

The art of soldering, while it involves nothing complicated or difficult, nevertheless is based on a few fundamental laws, which must be kept in mind, if perfection is desired in this very important detail of telephone work.

Essentially, soldering consists of joining two metals together by means of a softer metal, which melts at a comparatively low heat, and which flows in and around the two metals to be soldered. When allowed to cool, a continuous and permanent metallic contact is formed, thus preventing corrosion and loose contacts, which would subsequently cause unlimited trouble in a telephone plant.

Two pieces of metal cannot be soldered together, unless their surfaces are clean, and unless they are heated to a higher temperature. When metal is heated, however, it quickly oxidizes and prevents the solder from adhering to it, because of this oxide film, which effectively covers the pores of the metal being soldered.

It is, therefore, necessary to destroy this film of oxide before solder will unite with the metal. This is done with the aid of a flux, which is a mixture of rosin, alcohol, etc., or an acid flux. The latter is never used in telephone work.

The usual process in soldering a joint or union between two metals, is first to clean the wires or object thoroughly by scraping, and then to place them in the desired position. The heat from the soldering copper is applied to the joint or contact to be soldered, and as the temperature of the joint rises, solder is fed to the joint, which unites with the two metals being soldered, and firmly joins them together.

This all sounds very simple. However, a certain amount of knack is required to know when to apply the solder, and to get it to unite with the metals. It is necessary, of course, that flux be applied to the joint, either by virtue of its placement in the core of the solder, or by applying the paste to the joint separately. This flux is vitally necessary because of the oxidation that is set up by the heat.

In telephone work only one flux is considered, and that is rosin. The reason for this is self-evident, as we know that acid, when used as a flux, is very corrosive, and would continue to eat into the small copper wires long after the joint might be soldered. Not only this, but more important still, is the fact that acid is an excellent conductor, and the fine spray that is present when acid flux comes in contact with a hot iron, would tend to cause leakage between terminals and lugs placed close together.

The writer has seen numerous cases of trouble caused by men unfamiliar with this fact, attempting to solder with acid core solder on small terminals, etc. Acid core solder, however, is to be recommended for all soldering of iron or steel, such as in the repair of something of a mechanical nature on a telephone.

While rosin flux can be readily made by dissolving rosin in alcohol, yet, with excellent solder with the flux in the core, such as the Kester solder, there is no reasonable excuse for trying to use flux and solder separately.

Telephone companies cannot afford to take chances with the many prepared and widely advertised fluxes, which are said to have all the virtues of acid flux, and yet are non-corrosive. Best stick to nationally known solder made especially for the telephone field.

Copper, silver and brass take solder readily, using rosin as a flux, but iron or steel call for an acid flux. Aluminum cannot be soldered, using ordinary flux; in fact, it is necessary to use a special aluminum solder, and a much higher temperature than is used in other soldering.

One disadvantage with rosin core solder is that if too much rosin is present in the core of the solder, it sometimes forms a film between the wire being soldered and the terminal, which partially or totally prevents electrical contact, and yet appears to be a good joint to the eye. The hotter the iron, the less the tendency of the rosin to do this.

If good work is desired, it is necessary that soldering irons be kept in first-class condition. This consists of two things, i. e., keeping the point or tip of the iron well "tinned," and keeping the tip in the correct shape for the class of work being handled.

An iron is tinned by first cleaning the surface with a file, then rubbing this surface with a piece of sal-ammoniac, and applying solder simultaneously. Heated copper oxidizes very rapidly when exposed to the air, and solder will not adhere to it, unless this oxide is removed. Irons may be tinned by filing and using ordinary rosin or acid core solder.

The best contour of tip for telephone work is chisel shape, as shown in Fig. 1. An inspection of soldering irons on the frames of many telephone offices will disclose everything from four-pound soldering coppers to small ones of five and ten-cent store variety.

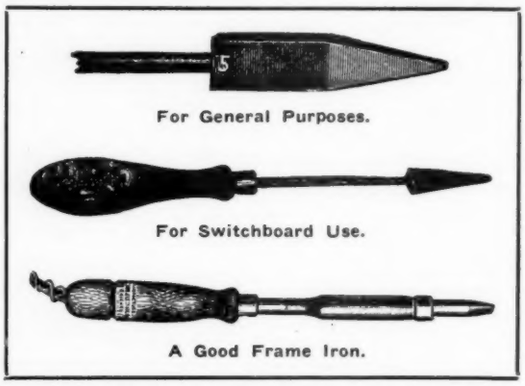


Fig. 1. Soldering Coppers Used in Telephone Work.

For soldering in the switchboard wiring, as on jack strips, etc., a small, slim iron is desirable. For jumper changes, nothing equals an electrical iron.

Many of the smaller Independent companies fail to realize that jumper soldering is an important detail of office routine. The writer has seen many small and medium-size plants with half of the main frame jumper connections unsoldered.

It should be a cardinal rule of every office to never make a jumper change without soldering. And it is necessary that it be done at that very time, for, carried over to another day, it will be forgotten, and will thus become a potential case of trouble.

Practice differs somewhat as to the proper method of soldering jumpers, and as to the amount of slack to leave. Some prefer jumpers tight, but there are many virtues to recommend in from two to four inches of slack in a jumper. Great care should be taken that all jumpers are run in a uniform manner. A certain standard should be adopted and all jumpers run according to that standard.

The jumper insulation should be removed for about three-fourths of an inch, the enamel carefully scraped off. With long-nose pliers, the wire should be grasped by the tip and placed against the soldering lug, so that the insulation rests completely to the front of the left-hand side of the lug. The wire should then be

given a half or full turn around the lug, depending on preference in this respect.

After being soldered, the rosin usually tends to harden around the insulation and prevent its slipping back on the wire, causing a "skinner." Many men experience trouble in removing the enamel from the wire, and usually do this with "long nose," and run the chance of nicking the small wire, which later breaks. The writer suggests a regular enamel scraper, as shown in Fig. 2, which certainly does the work. These can be made easily from spring steel, or purchased.

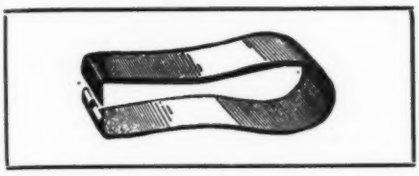


Fig. 2. Scraper for Removing Enamel Insulation.

In Fig. 3 is shown a method of applying waxed cord to prevent insulation ravel on test leads. Lamp cord, which is frequently used for test leads, has a habit of becoming very unsightly, due to this insulation ravel.

One more thought, and that is that a main frame in a small office is an excellent picture of the class of work you are turning out. Look yours over and see if it will stand inspection. If you find unsightly jumpers, with all degrees of slack, from one inch to one foot, unsoldered wires, wires first on one side of the lug, and then on the other, great gobs of solder on the lugs, small drippings of solder down between the terminals, then it is time to get busy, order some new jumper wire, and, above all, make the thing uniform. Select a standard and stay with it.

Fine Annual Convention of Washington Association at Edmonds.

The twelfth annual convention of the Independent Telephone Association of Washington was held at the I. O. O. F. Hall, Edmonds, on June 17 and 18.

A splendid program was prepared and carried out completely. The sessions were presided over, ably, by President W. M. Anderson, of Wenatchee. The major subjects on the program were the relations of the industry to various state departments. These topics were ably handled and in some cases resulted in considerable helpful discussion from the floor.

Officers were elected as follows:

President, W. M. Anderson, Wenatchee,

Secretary-treasurer, J. P. Baker, Spokane.

Trustees: J. N. Faust, Ellensburg; D. S. Wilkinson, White Bluffs; Jas. H. Milhollin, Blaine; D. M. Yost, Edmonds, and E. Smith, Chewelah.

North Bend was selected for the 1928 meeting place, the time to be determined by the officers.

The meeting was well attended and full credit for its planning and conduct should be given President Anderson and Secretary J. P. Baker, of Spokane.

Following the address of welcome on Friday morning by W. H. Dunbar, president of the Edmonds Chamber of Commerce, and the response by C. E. Hartigan, of the Interstate Utilities Co., Spokane, the report of Secretary-Treasurer J. W. Baker was presented.

Addresses were then made by D. M. Yost, of the Edmonds Telephone Co. on "Being a Host," and Chas. C. Deering, secretary-treasurer, United States Independent Telephone Association, Des Moines, Iowa, on "Independent Telephony."

In the afternoon these addresses were made:

"Our Idea of Tariffs," by C. E. Krieger, department of public works.

"What to Do and How," by Claire Bowman, department of labor and industries.

"Engineering," by C. Maynard Turner, department of public works.

"Industrial Insurance," by John Shaughnessey, department of labor and industry.

"Safety Methods," by Martin J. Flyzik, department of labor and industry.

On the evening of June 17, the Rebekahs served a fine dinner. Following the dinner, the 32-piece band of employes of the Pacific Telephone & Telegraph Co. at Seattle played a number of selections and a splendid program of vocal and instrumental numbers was given by women employes of the Pacific company from Seattle; to this was added a group of Scotch songs by an Edmonds man. A splendid first aid demonstration concluded the evening's program.

On Saturday morning the addresses were:

"State Franchise," by Thomas McCrory, state highway department.

"Things to Be Done," by Hance Cleland, Olympia.

C. E. Hartigan, of Spokane, reported for the activities committee recommending that the association materially enlarge its work and render greatly increased services to its members. The committee recommended the employment of Clifford & Cleland, attorneys of Olympia, to furnish advice and opinions to the association and to individual members; their services also to include preparation and distribution to members of a monthly bulletin.

The report was adopted and the secretary was instructed to ascertain how much of an assessment on a per station basis would be required to finance the movement.

The prevailing sentiment seemed to be that the association could and ought to carry on this work and the officers were instructed to execute the plan if and when funds were in sight. This seems to mark a new era of useful activity for the Washington association.

The nominating committee reported, and after adoption of its report, the officers were elected as previously named.

On Saturday afternoon a number of the members drove to Everett to see the exchange of the Puget Sound Telephone Co. furnishing telechronometer metered service. Commercial Superintendent Allen entertained the visitors at lunch and showed them the plant.

Dates of Southern Minnesota's District Conferences.

The Minnesota Telephone Association's secretary, J. C. Crowley, Jr., has announced that district conferences in the southern part of Minnesota will be held at Lake City on July 12; Chatfield, July 13; Blooming Prairie, July 14; New Prague, July 15; Redwood Falls, July 18; Tracy, July 19; Worthington, July 20; Blue Earth, July 21 and Madelia on July 22.

Among the subjects to be presented at the conferences will be plant maintenance and construction, depreciation, traffic problems and general accounting.

President Coolidge Names 12 for World Radio Congress.

President Coolidge has named 12 delegates to participate in the international radio conference to be held in Washington, D. C., commencing October 4.

The American delegation includes Secretary of Commerce Hoover, chairman; Senator Watson, Indiana; Senator Smith, South Carolina; Representative White, Maine; Assistant Secretary of State Casyle; Maj. Gen. Faltzman, chief signal officer of the army; Capt. Craven, director of naval communications; W. D. Terrell, chief of the radio division, department of commerce; Owen D. Young of the General Electric Co.; John J. Carty, chief engineer for the American Telephone & Telegraph Co.; John Beaver White, electrical engineer, and John Hays Hammond Jr., engineer.

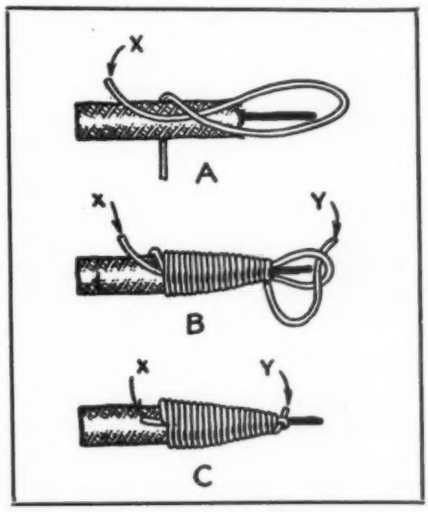


Fig. 3. Use of Waxed Thread to Prevent Insulation Ravel on Test Leads.

Telephone News Items from Europe

British Interests Are Alert to Prevent Loss of Control of Telephone Systems in Foreign Countries Held Mainly by English Companies—Relation of These Companies to British Manufacturing Industry—Other Miscellaneous Items

By "Telephony's" Special Correspondent

The chief feature in telephone news on this side recently is the amount of comment devoted by the press, in financial and general notes, to the acquisition by American interests of certain telephone companies, operated in foreign countries but owned and financed hitherto by British capital.

There seems to be a tendency in the direction of working up quite a respectable scare over this development, and there is a good deal of press talk about the shadow of a threatening monopoly, and that the present moves must be interpreted as symptoms of an intention on the part of American interests to control not only the preponderating proportion of the world's total telephones which are already functioning in the United States, but also the existing systems in the principal countries of Latin America, and elsewhere, mainly in the hands of British companies up to now.

If these monopolistic designs materialize, runs the argument, the market in all these countries, as regards the provision of exchange equipment and telephone plant in general, will be definitely and permanently closed to British manufacturers. Hence the enthusiasm with which the announcement is being received that British interests are alert to meet the danger and are retaliating by securing control of some, at least, of the coveted markets.

In the meanwhile, shareholders in the companies concerned, and not a few speculators, who are alive to what is going on, are "on velvet."

However much of truth or the reverse there may be in these stories, and ignoring the patently incorrect versions which flourish in print for a day or two, it is not surprising that British plant manufacturers should feel distinctly nervous at any genuine threat of the loss of markets which are already circumscribed and which are virtually indispensable to them.

The British telephone industry realizes that it will have to spread the butter very thinly on its bread in the future, if it is to be dependent entirely on Post Office orders and the demands of the home market for intercommunicating sets and small P. B. X. outfits. It is sufficient to state one simple fact to illustrate the position and to explain, perhaps even to justify, the nervousness felt by British manufacturers over any menace, real or fancied, of the closure of markets which have hitherto been an open hunting ground.

The simple fact is this: During the last few years, Britain's manufacturing capacity for the production of telephone plant and equipment has increased by 200 per cent: during the same period the Post Office has jogged along at a mean annual rate of about 10 per cent.

It would be some consolation to be able to feel assured of an acceleration and an expansion of the Post Office's program of new construction work. But the weather experts, with an eye on that sensitive barometer, the Treasury, discern signs that the wind is in the other direction and are now predicting that, so far from receiving authority to go full steam ahead, the Post Office will have to fight its hardest to prevent a definite restriction in its present rate of progress.

Roadside Telegrams.

The Automobile Association has announced that every A. A. roadside box is equipped with telephones, which are henceforward available for any member who wishes to send a telegram.

Members need only call the local telephone exchange, telephone the message, ascertain the charge and leave the amount in the box provided for the purpose.

This is a development of the association's roadside telephone service which was instituted in 1912. Special keys are issued for opening the boxes which are placed along all main roads and at many important crossings.

Charges That Kill Trade.

The "Frankfurter Zeitung" has been drawing attention to the high charges for telephone conversation between Germany and London. It points out that although London is only 410 miles away, the charges for a talk lasting three minutes are about twice as high as those made when speaking to Copenhagen, Oslo, Stockholm, Budapest, or Rome, all of which are farther away and some nearly twice as far.

The journal suggests that the British Post Office should revise its charges in order to promote trade between the two countries.

A "Wretched New Craze."

Some interesting glimpses of the Victorian world, which seems far more remote than it is in time, are contained in the second volume of the Diary of Lady Frederick Cavendish.

Referring to the telephone, she says that: "On Sunday evening a wretched new craze called a telephone was brought into play and F. (her husband) kept at work shouting down it for a long time, on the whole a failure."

Later, however, she altered her opinion of the invention and wrote: "That enchanting new marvel, a telephone, has been put up, whereby Castle and Rectory converse ad libitum."

Don't Shoot the P. M. G.

The annual meeting of the National Federation of Women's Institutes, which opened in London on May 31, passed unanimously a resolution urging on the Postmaster general the vital necessity of facilitating telephone communication in rural districts and begging the Treasury to make a considerable reduction in the guarantee at present necessary before a rural exchange can be set up.

H. E. Powell Jones, secretary of the Telephone Development Association, said that in asking the Treasury for a reduction in the guarantee, the federation was going to the right quarter. The Postmaster General who usually got all the blame, was like the pianist in a Western mining camp over whom was placed the notice: "Don't shoot the pianist; he is doing his best."

Helping Forward the Telephone.

Following the example set by British telephone manufacturers in forming the Telephone Development Association, a number of Swiss manufacturers, who supply the Swiss Post Office with telephone materials, have formed an association for promoting the telephone service in Switzerland and encouraging the use of the telephone there. The new association has assumed the title "Pro Telephon."

Privacy Soon on Across-Ocean Telephone Talks.

Radio fans will be unable, soon, to "listen-in" in combined wire and radio telephone service between the United States and England, W. S. Gifford, president of the American Telephone & Telegraph Co., announced recently. At present it is possible for radio listeners to hear but one end of the conversation, but Mr. Gifford expects that, by fall, absolute privacy will be assured. The transatlantic service averages six or seven conversations a day.

Western Carolina's New Magneto Exchange at Clayton, Ga.

The Western Carolina Telephone Co. has recently acquired a group of Independent exchanges in and around Franklin, N. C.

The first construction work was begun at Clayton, Ga., on June 20. This will be a modern magneto plant, and it is planned to have this exchange in operation by August 15, at the latest.

THE CHILEANS

Devotees of the STROWGER DIAL

DESCENDED from two unconquered races, the leading characteristics of the modern Chilean are honesty, independence, and industry. Sedate and pleasant in manner they are nevertheless whole-hearted at both work and play.

Hospitality is a characteristic and they are fond of joking, especially in practical shape, the prevailing mood being one of cheerfulness.

In South American commerce and industry Chile ranks next to Argentina and has followed her example in accepting "Strowger" as the established system of communication best adapted to modern requirements, and calling for no "trial and error period" to test its practicability.

The world owes the automatic telephone idea to Strowger, and all forms of automatic are imitations of "Strowger" developed in Chicago 30 years ago.

Upwards of 3,500,000 Strowger Automatic Telephones installed or under construction throughout the world

"ATM" Strowger"

AUTOMATIC TELEPHONE MANUFACTURING COMPANY, LTD.
STROWGER WORKS, MILTON ROAD EDGE LANE, LIVERPOOL

Associated Company
INTERNATIONAL AUTOMATIC TELEPHONE CO., LTD., LONDON

Where Strowger Autom

In Strowger Aut's

THE telephone business is a constantly growing, constantly developing business. Every day new and better materials are being developed which must be adapted to existing equipment. Every day brings new service and traffic conditions for which new circuits and new combinations of apparatus must be designed.

To keep Strowger Automatic telephone equipment abreast of the times---ready to meet not only the needs of today, but also those of tomorrow---demands a keen appreciation of modern methods tempered with the conservative wisdom that comes from long experience.

The Research and Development Departments of Automatic Electric Inc. are composed of men who, for the most part, have devoted their lives to the development of Strowger equipment, to the end that it may meet the needs of today and tomorrow better and more economically.

More Than 3,500,000 Strowger Automatic Telephones in Service or on Order Throughout the World

Automatic Electric Inc.

Factory and General Offices: 1033 West Van Buren Street Chicago, U. S. A.

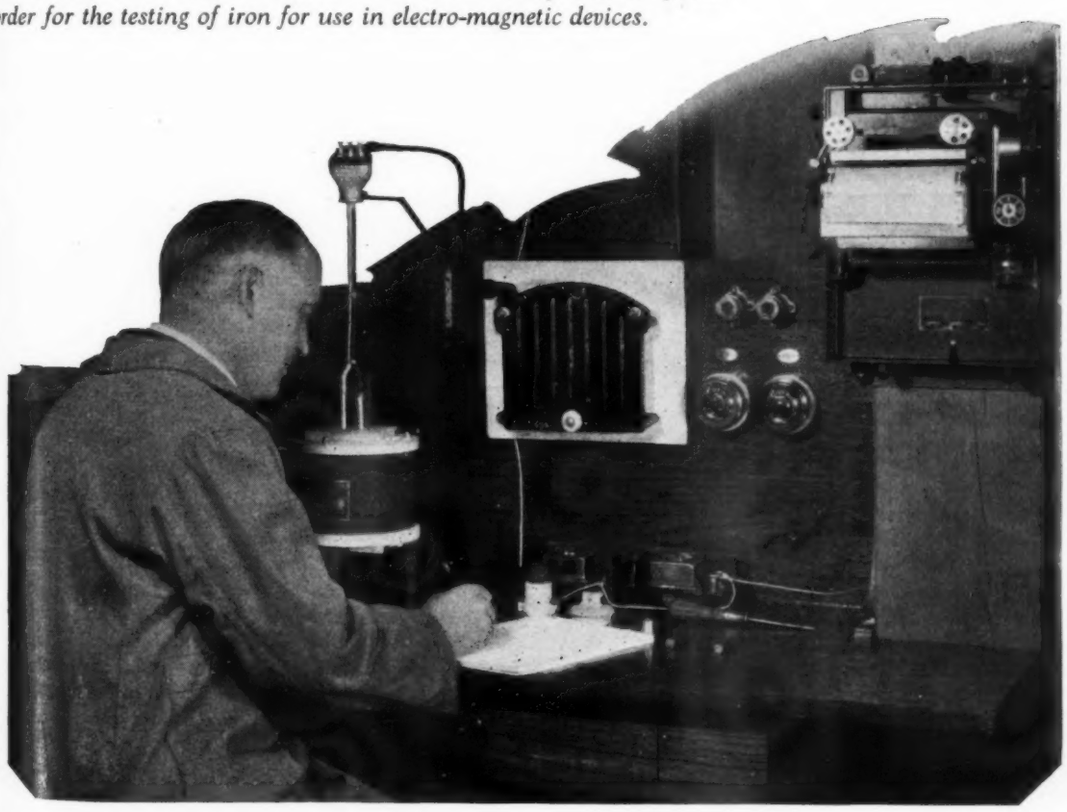
STROWGER

When writing to Automatic Electric Inc., please mention TELEPHONY.

oc Leadership Begins ~

Au's Proving Ground

The testing and selection of the hundreds of different kinds of materials that enter into the construction of Strowger Automatic telephone equipment is a never-ending job, requiring the use of the latest testing facilities known to science. Below is shown a transformation point recorder for the testing of iron for use in electro-magnetic devices.



R AUTOMATIC

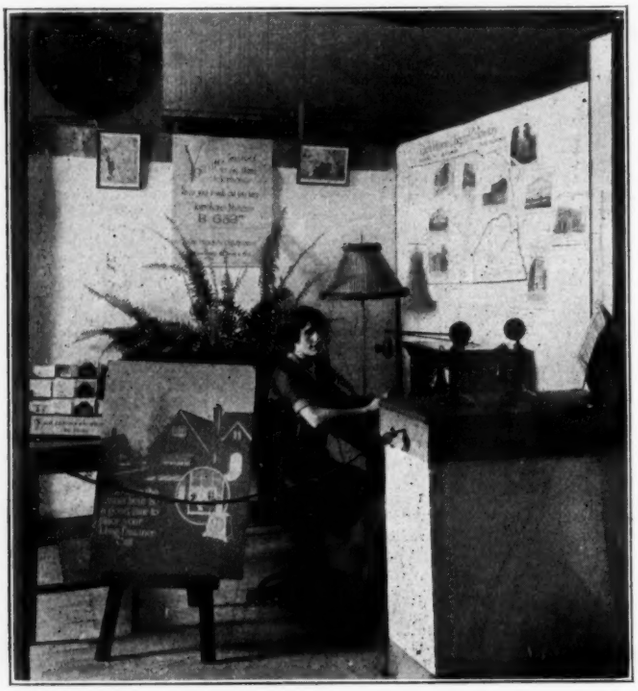
When writing to Automatic Electric Inc., please mention TELEPHONY

Here and There in Telephone Work

Advertising From Exhibiting at Industrial Exposition.

Fifteen thousand people of Lincoln, Neb., recently attended a local industrial exposition, and one of the striking exhibits much complimented was that of the Lincoln Telephone & Telegraph Co.

The illustration shows how it is possible to prepare a very pleasing exhibit and secure some valuable advertising. An attendant was in charge at all times, and effective telling of the company's story was a feature of the occasion.



Telephone Company Exhibit at Industrial Exposition.

"Here Comes the Preacher, Boys."

By L. M. HARRINGTON,
Canby, Minn.

I want to call your attention today to the subject of "Ruts and Brakes." Two things have impressed themselves on my mind as I go gallivanting over the gravel.

One is ruts—just plain everyday ruts that rare up to meet you, or drop out from under one in a sickening manner. Out here in Minnesota we have them, too, in places as a sort of offset to some of the good points of the "Land of Lakes."

There are as many different kinds of ruts as there are different kinds of roads, and we are all familiar with them—sand ruts, mud ruts, clay ruts—but the most treacherous and easiest to fall into is just a very slight one, glossed over and made smooth by wear and a thin coating of ice.

We start out on a nice, brisk winter morning, the old jitney purring along, hitting on all six, seemingly anxious to get us out to the job. A little unconsciously, we let it follow the track of hundreds of its fellows.

We pay more attention to the line in trouble than to the road, and just step on it—oh, so little—when zowie! the front wheel jumps sidewise, the rear ones come up front to see what happened. We throw on the brakes, which, of course, we shouldn't have done, and if we stop right side up and out of the ditch, we are all right for this time.

We have learned our lesson, however, and thereafter stay out of the rut, drive a little more slowly and in the end make better time.

"Well," you say, "Who is in a rut?" And I reply, "Don't ask me," with the accent on the "ask" instead of the "me." But in the same breath I want to ask "Who isn't?"

Like the fleas on David Harum's dog, a reasonable rut is a good thing for a man; but when it gets so deep or so heavy, or so icy that it retards progress and action, it is time to begin to cast around for a means of escape.

Ruts get so deep sometimes that it is impossible to get out of them until one comes to a side road, crossing or track of some kind. Even then it may be necessary to back out, and it becomes incumbent on us to look a long way ahead to avoid traffic difficulties, for two cars going in opposite directions in the same rut have never been able to pass until one or the other, or both, has given up a part of the highway.

Under these conditions care must be taken that someone does not do or say the wrong thing and complications develop. For example, if I should develop the habit of coming on the job from a half to an hour late the rest of the crew get to doing the same, it would not be a bit surprising if trouble began brewing for someone.

Subscribers soon get onto such practices and quite often chaff one about "soft jobs" and "bankers' hours." But some day, when a telephone unavoidably remains out of service longer than usual, there is no chaffing and we feel, perhaps, a little bit shame-faced, even if we are not to blame. Then we realize where we are driving.

To successfully run a business, it should be made a business proposition. Put a little snap and ginger into it; leave out the ginger ale; keep the frayed ends picked up. Don't come strolling along at 9 o'clock in the morning, and stop to visit with every one on the way. A brisk "good morning," with a smile would serve just as well and convey the impression that one had some important business on hand.

Neatness is a wonderful help to a telephone company. A good habit to acquire is that of picking up all bits of wire or other dirt that might be made in clearing trouble or making an installation; and also try to avoid tracking mud or dirt into a house, even if the house is dirty. We should remember that we are on private property and should endeavor to respect others' rights while pursuing our calling.

I could go on and name ruts innumerable, but every one recognizes them on sight; it is only a question of stopping to consider. Employes are not the only offenders: Subscribers sometimes get in a rut themselves, waiting until the last minute to pay their bills, or to ask for an allowance for failure in service each time they pay a bill. Non-subscribers get in worse ones, preferring to use the neighbor's telephone, leaving them to pay for the calls and clean up the mud tracked in on the floor.

Companies get in a rut and do not keep as accurate a set of books as they should; nor do not carry as good a supply of materials as they might; do not furnish as good tools as they should to have a real job of work done.

Many companies fail in their duty to their employes, financially and otherwise. Men, who have saved them many times what a little acknowledgement would cost, have gone on for years wondering and losing heart year by year. If a man is worth the price, why not give it to him? If he isn't, why not get out of the rut and fire him?

Here is where the brakes come in. In some ruts you don't need them, and in some others you shouldn't use them. But be sure they work as you start down hill.

New York Electrical Society Popularizing Electrical Science.

That the work of the New York Electrical Society in popularizing electrical science in New York City is to be continued and extended for another year was decided at the annual meeting of the society on June 4.

Reviewing the work of the society during the past year, President Sergius P. Grace said that total attendance at the meetings had aggregated approximately 9,000 persons, probably the largest attendance of any scientific organization in the United States. Inquiries received and answered continually by the society's officers, from industries, from the press, and from the public indicate, President Grace said, that the society continues to be recognized as an authoritative source of information about electrical science.

Equipment to Produce Short Radio Waves. When Glass Tube, Containing Helium and Neon, Held by Miss Adele Frank Against Two Aluminum Ribbons, Is Moved to a Point Characterized by a High Voltage of the Radio Current, the Gases in Tube Glow Luminously, Thus Indicating Position of High Voltage Points.

The New York Electrical Society is the oldest electrical society in the United Stated, perhaps in the world, having been organized February 23, 1881. Its purpose is the humanized presentation of all phases of electrical development, appealing to beginners and to the general public as well as to trained engineers. The society now has, President Grace reported, over 1,200 members and nearly 50 sustaining members.

Officers elected for 1927-1928 are: President, E. E. Free, consulting engineer; vice-presidents, R. B. Grove, United Electric Light & Power Co.; W. T. Teague, Western Electric Co.; Harvey C. Rentschler, Westinghouse Lamp Co.; treasurer, E. B. Meginniss, New York Telephone Co. E. E. Dorting of the Interborough Rapid Transit Co. and G. H. Reid, of The General Electric Co. remain as vice-presidents. H. E. Farrer was reelected secretary.

At the last regular meeting of the society in late April over 700 members and guests witnessed demonstrations of recent developments in uses of radio vacuum tubes.

Dr. Harvey C. Rentschler, director of research of the Westinghouse Lamp Co., at Bloomfield, N. J., demonstrated some of his recent remarkable work with the radio vacuum furnace. In this furnace he is able to produce in pure metallic form such rare metals as uranium and thorium. Dr. Rentschler, who was the first to wrest the oxides away from uranium and leave the pure metal, had samples of uranium in the forms of wires and disks, which were over 99 per cent pure.

Dr. Phillips Thomas, of the East Pittsburgh research staff of the Westinghouse Electric & Mfg. Co., showed the production of radio waves only a few feet long. He then proceeded to point out what would be the remarkable properties of waves only a few inches long. It seems very likely that Dr. Thomas will succeed in producing shorter and shorter waves, and possibly sometime in the near future very short waves only several inches long may be generated.

"We may visualize," he said, "a parallel beam of radiation ten centimeters or four inches across, along which is being sent ten kilowatts of energy. What sort of effects shall we find? Will this be a means of delivering energy for heat and light to individual houses?

"Telsa had a similar idea many years ago. Later improvements in the radio art make it interesting to consider such a possibility once more. We may imagine each house furnished with a half-wave oscillator in line with a parallel beam from a sending station, so that heat and light may be obtained very much as at present, by simply turning a switch, but without the costly transmission wire equipment now required.

Again, suppose it should happen that this four-inch beam of highly-concentrated energy should render conducting the air through which it passes. Then ordinary electric power could be sent along the beam as though the beam were a transmission line. The beam could be directed to any desired spot, with dire results to the target. It would constitute the so-called 'heat ray' employed with such deadly effect by the Martians in H. G. Wells' well-known story of their descent upon the earth."

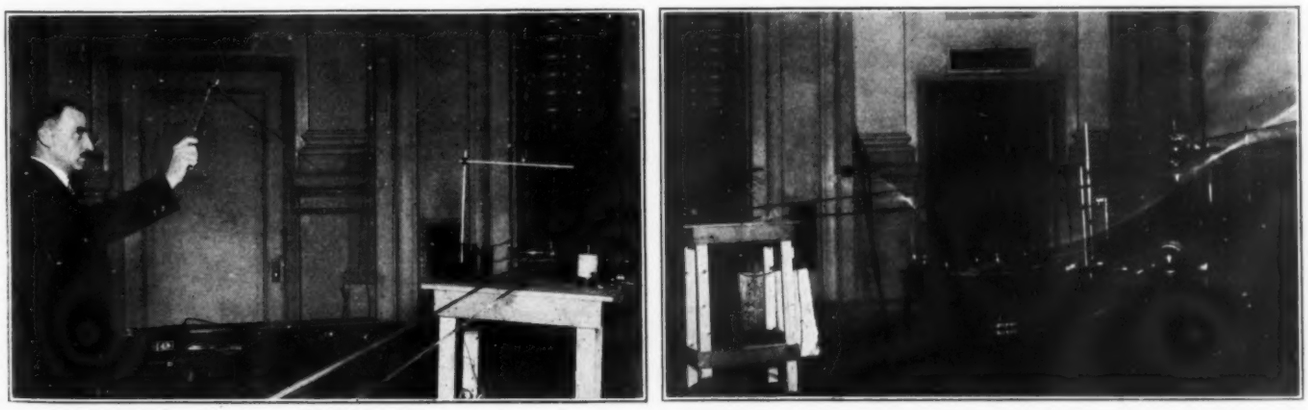
In one of the small illustrations, at the reader's right, in front of Dr. Thomas, is a vacuum-tube oscillator used by him to produce radio waves with a wave-length of only 240 centimeters, which is less than one-hundredth of the wave-length of the radio waves ordinarily used in broadcasting.

The two aluminum ribbons stretched horizontally from the oscillator receive radio power from it. On these ribbons, commonly known in physical laboratories as "Lecher wires," permanent systems of radio waves are set up and may be detected with lamps or other instruments, so that the exact wave-length of the radio waves can be measured.

Miss Adele Frank is holding against the two aluminum ribbons a glass tube containing a very little helium and neon gas. When this tube is held at a point along the wires characterized by a high voltage of the radio current, the gases in the tube glow luminously, thus indicating the position of the high voltage points.

Another illustration shows Dr. Thomas with a copper-wire Hertzian antenna used in exploring the field of radio waves emitted by a short wave, power oscillator.

At the reader's right is the vacuum tube oscillator used by Dr. Thomas to demonstrate waves of 240 centimeter wave-length The single copper wire held by Dr. Thomas



Dr. Phillips Thomas, Research Engineer of Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., with Copper-Wire Hertzian Antenna Which He Used to Demonstrate the Fact That Radio Waves Emitted by the Oscillator Are Polarized—A Visual Picture of Radio Waves as Demonstrated by Dr. Thomas.

has at its center a small electric lamp which glows when the copper-wire antenna is placed in proper relation to the radio field emitted by the oscillator.

By holding this antenna in different directions in the field, Dr. Thomas demonstrated the fact that the radio waves emitted are polarized.

A visual picture of radio waves is also shown. The whitish line curved across the photograph shows the position of a rapidly-

Dr. Harvey C. Rentschler, Director of Research of the Westinghouse Lamp Co., Bloomfield, N. J., with the Apparatus Used by Him as a "Radio Furnace" in Order to Produce Chemical Reactions Which Will Not Occur under Ordinary Circumstances.

vibrating rope used by Dr. Thomas to indicate the nature of radio waves. The rope was caused to vibrate by means of the small motor on the table at the left.

One of the "nodes" or points of no motion of the rope is indicated by the white dot just to the left of the center of the picture and another one of these "nodes" by the similar whitish mark near the right hand side of the picture. The upper and lower limits of vibration of the rope between these nodes can both be seen.

The radio furnace demonstrated by Dr. Rentschler, is designed to concentrate large amounts of radio power within a small space, rather than to send it for long distances over projected beams.

Certain metals, although long known to the chemists, cannot be prepared usefully in metallic form by ordinary methods because these metals are combustible when in fine powder, taking fire in the air like tinder whenever they are heated. By conducting the heating of these remarkable inflammable metals with radio power and in a vacuum, Dr. Rentschler has made them in metallic form and in some quantity.

Two of these metals, thorium and uranium, belong to the group of radioactive metals including radium. Now that the use of the vacuum radio furnace has made these peculiar metals available, they are expected to find uses, Dr. Rentschler said, in industry.

The two large glass bulbs in the center rear of the illustration showing Dr. Rentschler's equipment, are mercury vapor spark-gaps which are parts of the apparatus used to produce high-frequency electric currents. These high-frequency currents, passed through the coil of heavy copper wire just above Dr. Rentschler's hand, generate high-frequency radio waves in and around the copper coil. Inside the glass bulb which Dr. Rentschler holds are chemicals which it is desired to have react with each other.

All air and other interfering gas is exhausted from this bulb. Radio waves from the copper coil penetrate the vacuum in this bulb and heat up the chemicals, thus initiating the reaction. In this manner chemical reactions requiring heat but which will not occur in air, can be produced by means of radio heat. In demonstrating this apparatus, Dr. Rentschler produced a coating of pure metallic potassium on the inside of the glass reaction bulb by means of a chemical reaction started by radio waves.

Peninsular Company in Florida Shows Large Telephone Gain.

Gain of 15,000 telephones operated by the Peninsular Telephone company on the West Coast has been made during the past two years up to June 1, it was announced recently by W. G. Brorein, president, following a meeting of all district managers Friday at Tampa.

The report shows a constant gain since March 1, 1925, despite the readjustment conditions which have brought declines in many lines of business. In March, 1925, there were 34,667 telephone stations; the following year there were 46,376 stations; while on June 1 of this year the total number was 49,440.

In announcing the report, Mr. Brorein declared: "The substantial growth through 1926 indicates that the sound and productive growth of the territory continued on a good scale and overcame the losses occasioned by those only temporarily interested in Florida.

"It is evident that the return to a normal trend of growth and development has been largely accomplished without affecting to any extent the productive and stable influences of the territory."

New Company Organized to Operate Michigan Properties.

Application has been filed with the secretary of state of Michigan for authority to incorporate the Tri-County Telephone Co., which will operate in Cass, Van Buren and Allegan counties.

Dr. O. M. Vaughan of the Van Buren County Telephone Co. will be president of the new organization and A. B. Chase, general manager of the Van Buren company, will become secretary and treasurer.

The new corporation is being formed to take over the Van Buren County Telephone Co., the Dowagiac Telephone Co. and certain properties of the Michigan Bell Telephone Co., including the Allegan exchange and certain toll lines in the new tri-county area.

South Haven will be the headquarters of the new company. According to Dr. Vaughan, the companies involved in the merger are now operating independently and consolidation has been effected to give improved service to this agricultural section.

The Michigan Bell Telephone Co. will be financially interested in the new organization to the extent of the value of its properties taken over and will give toll line connections to the new organization, making the entire Bell system available.

Fire Destroys Cable; 100 Telephones Out of Service.

The Lincoln Telephone & Telegraph Co. lost 90 feet of 50-pair cable by reason of a fire in the town of Murray, Neb., on the morning of June 9. This put out of business 100 telephones.

Wire splicers were on the scene within three hours after the fire started, but the ruins were too hot for them to begin work until several hours later. The fire wiped out half the business center, inflicting a loss of $50,000.

District Meetings Scheduled for Nebraska This Month.

Secretary George M. Kloidy of the Nebraska Telephone Association has arranged with I. J. Devoe, chief accountant of the state railway commission, for two meetings during this month with telephone men to study accounting problems. One of these will be held at North Loup on July 11 and the other at North Platte on July 13.

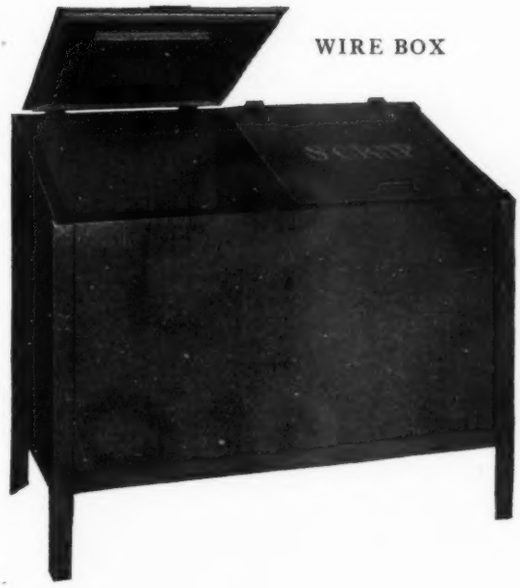
Mr. Kloidy is inviting all telephone managers and others interested in gaining a better understanding of their accounts, and how these may be kept so as to reveal conditions at any time, to attend and take active part in the discussions.

Bell "Putting Its House in Order" in Nebraska.

The Northwestern Bell Telephone Co. is doing some cleanup work with respect to rates and service in Nebraska.

It recently changed Gothenburg into a common battery exchange, and has been given increased rates. Similar work is being done at Sidney, and additional rates will be asked, putting these fair-sized cities on a par so far as service and rates are concerned with other exchanges similarly situated in the state.

The company has asked the state railway commission to cancel rates on incoming lines and stations at its exchanges at Fullerton and West Point. It says that there is no public demand for this sort of service any longer, and that no service is now being given.



WIRE BOX

LYON

STEEL · EQUIPMENT

SHOP BENCH

In offices, storerooms and exchanges of the industry stands enduring proof of the success of Lyon Engineers in helping to solve the special storage requirements that have developed with the growth of the telephone. Bulletin 314-A illustrates and describes these long-lived, efficient storage units. Are you fully informed on all of them? You may need items of just such equipment today. So write for Bulletin 314-A, filled with special storage units for the telephone industry.

TU-DOR

LYON METALLIC MANUFACTURING COMPANY
Aurora, Illinois

LYON STEEL PRODUCTS

BRANCHES AND DISTRICT REPRESENTATIVES IN ALL PRINCIPAL CITIES

When writing to Lyon Metallic Mfg. Co., please mention TELEPHONY.

With the Manufacturers and Jobbers

Polo, Ill., Buys New Plant Equipment of Leich Company.

The Polo Telephone Co., Polo, Ill., a city of 2,000 people located in Northern Illinois, recently signed a contract with the Leich Electric Co., Genoa, Ill., for complete common battery central office equipment and 500 telephones to convert its present magneto telephone system to common battery.

The history of the growth of the present Polo Telephone Co. is a repetition of numerous other local plants which have continued to develop as the community made progress and became more prosperous.

Beginning as a mutual company in the early 1900's, the early record shows that a mutual organization was not capable of keeping in step with the business requirements, and in 1913, the organization was changed to a stock company.

At this same time, the new management purchased a four-position Leich magneto multiple switchboard and separate toll board. The new board, because of the multiple and other features, made it possible to render far better service than was formerly possible with the transfer type of magneto equipment.

The public reaction to better service was greater demand for telephones, and the number of stations increased rapidly. The management, by its established policy of rebuilding and replacement, had continued to improve the plant in every department.

The present change in the system was brought about several years sooner than was originally intended and really a number of years before the traffic would increase beyond the capacity of the magneto multiple board. A change in location of the central office to newer and more suitable quarters with greater space and facilities made the time of moving especially suitable to change switchboards, and, due to the rapid rate of growth, it was decided to change to common battery now.

The subscribers of Polo have had the benefit of excellent telephone service in the past at reasonable rates, and with the new system the management promises service that will meet the standards of today.

Features that have the most influence on speed of operation are to be incorporated in the new equipment. Line jacks and line lamp signals are multipled in each three panels—an arrangement that provides easy access to all incoming calls by any operator at the board.

Machine ringing will take care of all local calls, and perhaps is the most important feature about a switchboard in point of time-saving to the operator. The ringing will be instantaneous cutoff and also under the control of the calling subscriber. Four-party harmonic signaling will be controlled by individual party-line keys in each cord circuit. Emergency ringing facilities are provided.

The initial installation of the switchboard will consist of three operators' positions arranged to accommodate an ultimate of 900 lines with three-panel multiple with associated line lamps, 80 farm lines and 20 toll lines. Farm lines are terminated in lamp signals, multipled and are so arranged that code rings are easily distinguishable.

The first position will handle all toll calls and has facilities for this purpose. In the face of the board are the toll line lamp signals, multiples of the local lines and rural line multiple. Five of the cord pairs are special toll circuits and ten are universal circuits. The cord circuits in the next two positions are universal. Service meters are to be installed in each position.

The power plant consists of a heavy duty storage battery of 11 cells to be charged by a Tungar rectifier. Suitable instruments and switches are provided to control the various circuits. Duplicate Leich harmonic converters will supply the ringing current.

The installation will be handled by the Leich Electric Co. and it is expected that the new plant will be cut over by October, 1927.

Clarence A. Anderson Associated with American Electric Co., Inc.

Clarence A. Anderson, in addition to being president of the West Mfg. Co., is now associated with the American Electric Co., Inc., in the manufacturing and selling of West test sets. The American Electric Co., Inc., has been appointed the licensee and distributor of the West Mfg. Co.'s products.

For 27 years Mr. Anderson has been actively interested in telephone work. He is a member of the Western Society of Engineers, Telephone Pioneers of America, and Railway Telegraph & Telephone Appliance Association.

His has been a varied experience, serving in the manufacturing, operating and development of telephone apparatus. Beginning in the telephone business as an apprentice and rising to chief installer of one of the telephone manufacturing companies of Chicago, later serving in the telephone department of the Stromberg-Carlson Telephone Mfg. Co., he then entered the operating field as manager of a small group of telephone exchanges in central Kansas.

It was then, and on his own time, that Mr. Anderson developed and patented what is known as the "Anderson lock-out" party-line system. Later he sold out his interest in the Kansas telephone companies and entered the employ of Western Electric Co. in Chicago, doing development work.

Clarence A. Anderson, President of West Mfg. Co., Is Also Associated with American Electric Co., Inc.

Leaving Western Electric Co., he became chief engineer of the Anderson Electric Co., which was a holding company for "lock-out" patents. He has also developed a number of other patents, one of which was the well-known Anderson trouble-finder test set, now the West test set.

In 1913, Mr. Anderson became associated with the United Telephone Co., of Abilene, Kans., as superintendent of equipment, and in 1924 went to the Southwestern Bell Telephone Co., St. Louis, to work on automatic and machine-switching equipment problems.

In 1926 he resigned his position with the Southwestern Bell Telephone Co. to become president of the West Mfg. Co., which was then incorporated and began manufacturing the West test set on an enlarged scale for distribution throughout the United States and foreign fields.

New Inductor Generator for Exchange Signaling Power.

The world moves, and with its movements are recorded the rise and fall of industries. Some industries have dropped by the wayside, having outlived their usefulness. The carriage and wagon have been replaced by the automobile and motor truck. Who knows how long it will be until they are replaced by some other means of transportation?

The "MACADIE" AUTOMATIC COIL WINDER

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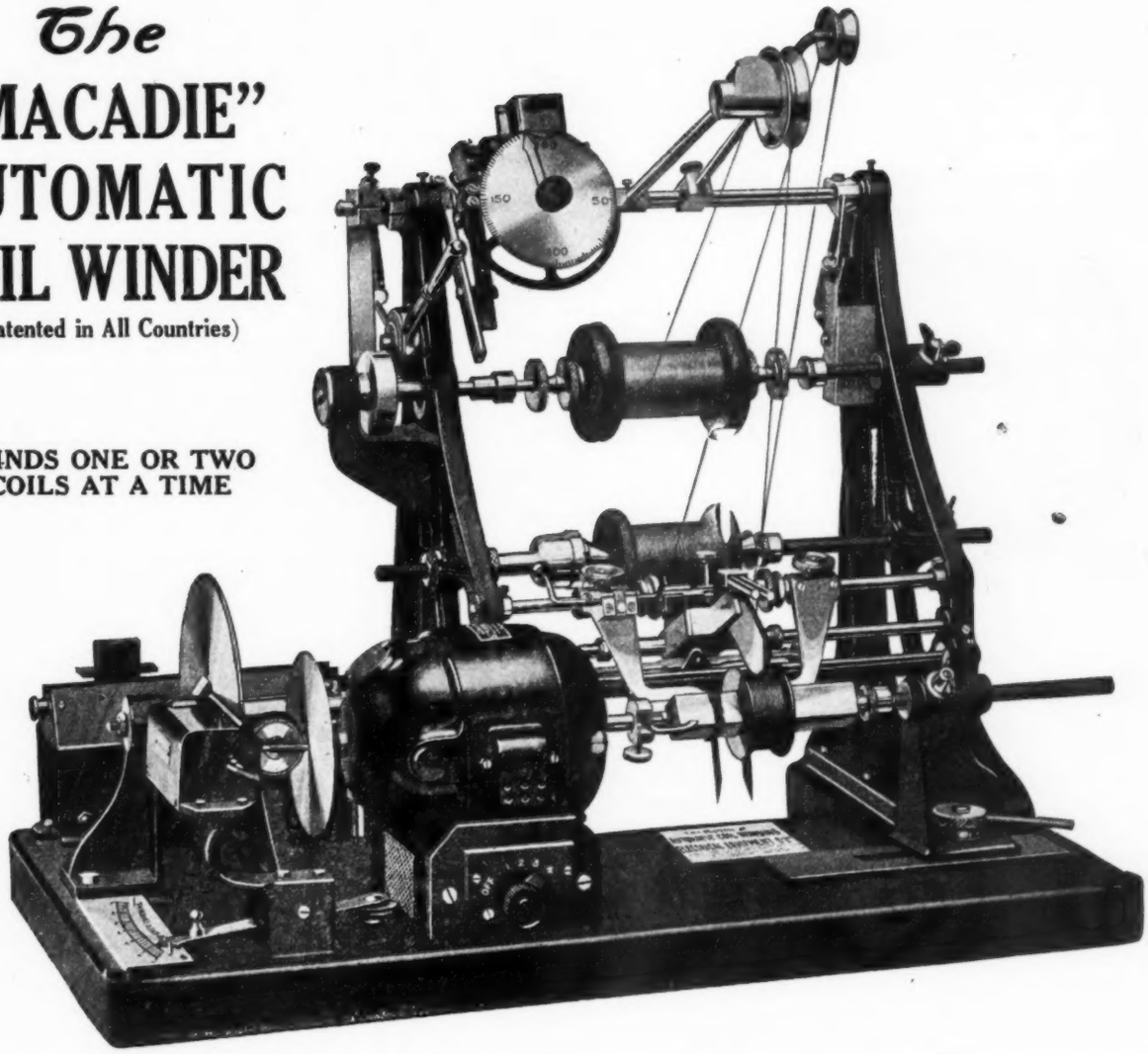
WINDS ONE OR TWO COILS AT A TIME



The "Macadie" Winder

has been described by one of the largest Electrical concerns, as

"THE FINEST COIL WINDING PROPOSITION THAT HAS EVER BEEN PUT ON THE MARKET."

This testimonial was given two years ago, since when we have greatly improved the general construction of the machine, and made additions, many of which our customers have suggested.

Keep pace with the march of Progress

TO reduce to a minimum the human element is the aim of all manufacturers. The winding of coils has, in the past, called for knowledge and skill on the part of the operator.

Investigate the merits of the "Macadie" machine, you can do this easily and quickly—our new booklet tells the whole story.

Coils ranging in size from ⅛" to 5" can be wound at any desired speed and tension up to 6,000 revs. a minute. The shape of the coil does not matter—it can be round, flat, rectangular or irregular.

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has been installed in the principal Electrical Works throughout the world.

FOR TELEPHONE FACTORIES, ITS INTRODUCTION INCREASES OUTPUT, REDUCES COSTS, AND STILL MORE IMPORTANT, PRODUCES PERFECTLY WOUND COILS.

We advertise these facts but give proof.

A sample machine has resulted in an order for NINETY, in another case, FIFTY-FIVE.

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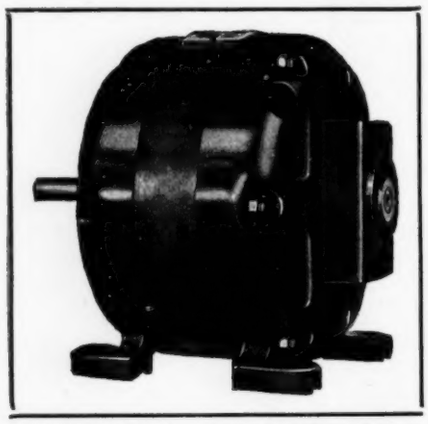
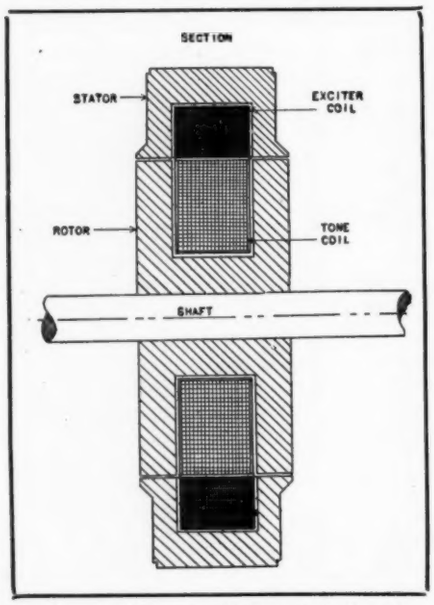
On the other hand, some industries have kept pace with modern requirements. In advancing, they have had to develop more modern equipment. Even the human element has been replaced by machines in many cases.

Taking the telephone industry as an example, many improvements have been recorded. Ringing, which was formerly a manual operation, is now accomplished by mechanical devices. Busy, howler, and other tones are given by interrupting a current to give the different tones.



Holtzer–Cabot New Inductor Tone Generator for Exchange Signaling.

The usual practice is to employ a segmented ring to interrupt the current for these different tones. Many disadvantages in this method have been recognized. The output is limited in use, as a heavy current causes sparking at the point where it is broken; and the point where the current is broken requires constant cleaning to maintain a uniform tone—otherwise the tone varies, and it is often a source of annoyance to the telephone-using public.



Sectional View of Holtzer–Cabot's New Inductor Tone Generator.

To eliminate this condition and provide a smooth, pleasant tone, an inductor generator has been developed which generates an alternating current, constant in value and with a smooth wave form, producing in turn a very pleasing tone. This inductor generator is designed along the lines of an inductor type alternator and has the appearance as shown in the accompanying illustration.

An examination of the cross-section view will show that the generator consists of an iron stator, iron rotor, and two concentric stationary coils. The two coils are completely enclosed by the stator and rotor.

The exciter coil, which is the outer coil, is connected by bringing out leads direct to any source of direct current, such as the exchange battery. The inner or tone coil has leads brought out and is connected direct to the tone circuit, eliminating the use of commutators, slip rings or brushes.

When the generator is used for busy or trouble tones, it is wound for very low voltages; when used for howler tone, a higher voltage is required. The stator requires a minimum of five watts for excitation.

Due to the smooth wave form developed by this generator, the tones do not easily spread to the adjacent circuits or conductors, as is the case where interrupted battery currents are used.

The Holtzer-Cabot Electric Co., 6161 South State street, Chicago, well-known manufacturers of telephone exchange power equipment, is the manufacturer of this generator. It will gladly furnish descriptive literature or additional information to any exchange which is interested in creating and maintaining happy relations with the general public by employing the latest developments in power equipment.

American Electric Co., Inc., Made Distributor for West Mfg. Co.

Under an agreement, recently made, the American Electric Co., Inc., becomes the licensee and sole distributor of all products manufactured by the West Mfg. Co.

The West Mfg. Co. organized its business in Abilene, Kans., several years ago, for the purpose of manufacturing what was then known as the "Anderson trouble finder." In 1926 the company was moved to Chicago and established its main office at 447 Monadnock block, and the "Anderson trouble finder" was then renamed the "West test set."

This West instrument is a combined test set and portable telephone. It is a simple, compact device for locating line troubles, such as shorts, grounds, opens, crosses, etc., with the use of a finder coil. Its generator supplies the test tone without the use of vibrators, buzzers or batteries. The outstanding features of this test set are the ease and speed with which a lineman alone can locate troubles without opening circuits and without aid from the main office.

The West test set is rapidly being adopted by many telephone companies, railroads, oil companies and electric power companies, throughout the world, as their standard testing instrument.

While the West Mfg. Co. remains actively in business, the American Electric Co., Inc., now becomes licensee and distributor of the West test set, and other products which the West company is developing.

U. S. Signal Corps Places New Order for P.B.X. Switchboards.

Contracts were awarded during the week of May 21 by the U. S. Signal Corps to the Leich Electric Co. of Genoa, Ill., covering the purchase of six-two-position P. B. X. switchboards.

The Signal Corps has adopted the two-position board as regular equipment for army posts, and is placing the new equipment in service wherever changes are to be made. The order for six is the second order placed for these boards, the initial order of ten having been supplied by the Leich Electric Co. during the past year.

One of the boards was exhibited at the national convention in Chicago last October and many favorable comments were made regarding the arrangement of relays and general construction.

The switchboard consists of a two-position section oak cabinet finished in dark oak. Key shelves and plug rail are faced with black micarta.

Line and cord relays are supported on swinging gates which lock rigidly in closed position, yet swing outward easily for inspection of relays.

All boards are provided with trunk circuits for connection to common battery main exchanges and also arranged for future connection to automatic exchanges.

The design and arrangement of equipment is made universal to adapt the boards to the local conditions of army posts widely scattered over the United States.

Equipment Manufactured by Trent Includes Solder Pots.

In the line of equipment of the Harold E. Trent Co., manufacturers of electrically heated industrial equipment, 439 W. 12th St., Philadelphia, Pa., are electric solder pots. The Trent company was listed in "TELEPHONY'S 1927 Directory of the Telephone Industry" classified index of specialties used in the telephone field, as manufacturers of melting pots, and the company should also have been listed under the heading of soldering tools, which naturally includes electric solder pots.

Personal.

C. W. MORGAN, of St. Louis, has resigned as directory supervisor of the Southwestern Bell Telephone Co. and has accepted an executive position with L. M. Berry & Co., telephone directory advertisers and publishers, of Dayton, Ohio.

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MEMPHIS.....
..Union and Planters Bank Bldg.
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PITTSBURGH ..... Frick Building
PHILADELPHIA Widener Building
ATLANTA....101 Marietta Street
WORCESTER....94 Grove Street
BALTIMORE 32 So. Charles Street
BUFFALO.....670 Ellicott Street
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DALLAS .... Praetorian Building
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What the Commissions Are Doing

Up-to-the-Minute News Regarding the Activities of State and Interstate Commissions, Courts and City Councils in Matters Concerning Telephone Companies—Summary of Commission Orders and Schedule of Telephone Hearings

Appeal Denied From Canadian Railway Board Bell Decision.

The appeal against the Board of Railway Commissioners for Canada's judgment in the case of the Bell Telephone Co. of Canada has not been granted by the cabinet.

In the language of the committee of the privy council, it is decided "that the prayer of the petitioner be not granted, but that the Board of Railway Commissioners be urged to keep a close watch on the operations of the company, so that, in case it be found that the ratio for depreciation, or otherwise, governing the rates fixed by the board are not justified, immediate action may be taken by the board to bring the rates into conformity with conditions which experience shows actually exist."

The privy council committee report was made public on June 17.

The appeal was made by the province of Ontario, the cities of Toronto, Hamilton, Ottawa and Brantford and the Union of Canadian Muncipalities against the order of the board made last February granting increases in telephone rates.

The board had previously given several weeks to the hearing of the company's application, and the opposition. It was one of the most exhaustive hearings ever undertaken by the railway commission, in which scores of counsel and technical witnesses were present.

The report of the committee of the privy council, after referring to a report, dated June 8, 1927, from the Acting Minister of Justice and the petitions of the government and attorney general of Ontario, the city of Montreal, the city of Toronto, the city of Hamilton, the city of Ottawa, the Union of Canadian Municipalities and the city of Brantford, says: "The minister has also carefully weighed the written and oral arguments presented by counsel for the several parties interested, on June 1 and 2, 1927.

"The minister observes that, in appeals to the governor-in-council from the Board of Railway Commissioners, a practice has grown up not to interfere with an order of the board unless it seems manifest that the board has proceeded upon some wrong principle, or that it has been otherwise subject to error.

Where the matters at issue are questions of fact, depending for their solution upon a mass of conflicting expert testimony, or are otherwise such as the board is peculiarly fitted to determine, it has been customary, except as aforesaid, not to interfere with the findings of the board.

The minister points out that the questions which were raised in argument are the very kind for the determination of which the board was constituted. They are complicated questions upon which the board would, of necessity, be guided by the advice of specialists in the several fields of research involved, and the minister considers that it cannot be said that it is manifest that there has been error in appreciating the mass of expert testimony and data submitted.

It is to be noted, further, that in none of the written or oral arguments submitted to the council has it been successfully contended that the board proceeded upon any principle which was not open to it to apply or that its findings were unsupportable upon the evidence.

It appears, however, from the judgment of the board (page 254) that along some lines of investigation, doubt and uncertainty prevailed, and that conclusions were not infrequently admitted to be little more than an arbitrary estimate; that this is more particularly applicable to the depreciation rates, and that as the business develops this item will grow larger and larger.

In view of these observations of the board, it is, in the opinion of the minister, most important that the board should keep very close watch upon developments from time to time with a view to making it certain that in case experience shows that the board has erred in the fixing of the rates in question, immediate action may be taken by it to bring the rates into conformity with the actual conditions which may be found to exist.

The committee concur in the foregoing, and on the recommendation of the acting minister of justice, advise that the prayer of the said petitions be not granted, but that the Board of Railway Commissioners be urged to keep close watch upon the operations of the company so that in case it be found in actual experience that the ratios for depreciation, or otherwise, governing the rates fixed by the board are not justified, immediate action may be taken by the board to bring the rates into conformity with conditions which experience shows actually to exist."

Free Interchange Service of Illinois Southern to Continue.

The Illinois Commerce Commission recently denied the application of the Illinois Southern Telephone Co., Murphysboro, to discontinue free interexchange service between Belknap, Cypress, Grand Chain, New Burnside, and Vienna and other exchanges owned and operated by Illinois Southern company and other Independent companies in the vicinity. Protests had been filed by various subscribers of the company to the discontinuance of the service.

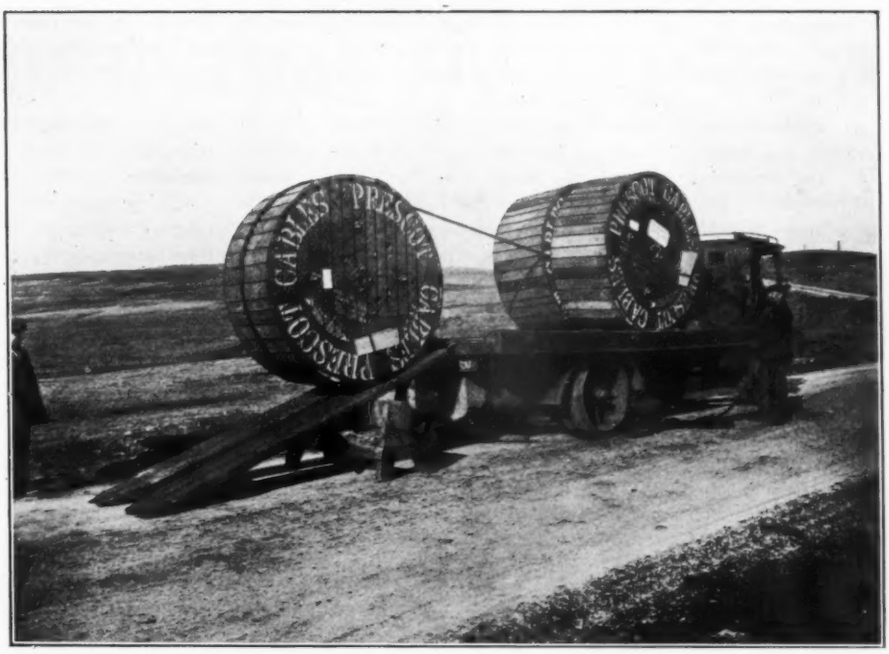
The company presented in evidence a statement showing the book value of its property, as of June 30, 1926, and a statement of operating expenses and revenues which showed that before providing for depreciation, each of the exchanges was operating at a deficit, the total deficit for the five exchanges being $1,073; that after depreciation was provided for, the deficit would amount to $3,123.

The company contended that the discontinuance of the free inter-exchange service was not designed as a revenue-producing measure, but that it was the intention of the company as a part of its proposed toll system to rebuild the toll lines connecting the several towns covered by the application, and to rebuild and reconstruct these toll lines so that adequate service could be furnished; that the elimination of the free service would relieve congestion now existing on the lines and thereby improve the service generally in the community.

The commission's engineering staff submitted an exhibit which showed the maximum average calls between any of the points to be ten calls per day. The exhibits submitted also showed that some of the points to which the subscribers in the several exchanges at present received free toll service were rarely called. The data presented by the engineering staff did not indicate that there was any abuse of the free service privileges.

The exhibit presented by the engineering staff showed that the population of Vienna was 1,000, and that at this point, 294 telephones were in service; that New Burnside had a population of 309 with 49 telephones, Grand Chain a population of 600 with 60 telephones, Belknap 424 with 39 telephones, Cypress 315 with 91 telephones; and that if the free service were discontinued, the maximum number of subscribers who could be called without extra charge would be 294, and the minimum number 39.

The commission found that the locality covered by the proposed elimination of free inter-exchange service was sparsely settled; that the company's exchange rates at the several points were uniform, the charge for individual line business telephone being $36 per annum, two-party line business telephone $33 per annum, individual line residence $21 per annum, four-



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party line residence $18, and rural residence $15, that the number of subscribers connected to any one exchange was relatively small.

In order to receive a service which was of value to them, the commission found, the subscribers must have free communication with other neighboring points. The evidence showed that the company had already discontinued free toll service between New Burnside and Creal Springs and New Burnside and Stonefort without the approval of the commission. The amount of revenue to be derived from the proposed toll rates was negligible, the commission found, and would not improve the financial condition of the company, nor was it shown that there would be any saving to the company in operation by the discontinuance of the free service.

The commission decided that the application to discontinue free inter-exchange service at the Belknap, Cypress, Grand Chain, New Burnside and Vienna exchanges should be denied, because the discontinuance of such service would lessen the value of the service to such an extent as to make it practically useless to the subscriber, also that free inter-exchange service between New Burnside and Creal Springs and New Burnside and Stonefort should be restored immediately, and the free service heretofore in existence reestablished and continued until further order of the commission.

Bell Makes Adjustments in Iowa Long Distance Rates.

Adjustments in charges for long distance calls involving considerable reductions for the greater distances within the state of Iowa and small increases for some of the shorter distances were recently announced by the Northwestern Bell Telephone Co., effective June 21.

The purpose of the change, is to bring about improvement in the relation between the long-haul and short-haul rates. The existing rates for the longer distances are relatively too high under present conditions and those for some of the shorter distances slightly too low. The changes are not made for the purpose of increasing the company's revenue, it is stated.

The reductions in charges are more as the distance is greater and also more on person-to-person calls than on station-to-station calls. At 195 miles the reduction in person-to-person rates is 35 cents and in station-to-station day rates 15 cents.

For distances up to 30 miles the rates for both day station-to-station and person-to-person calls are unchanged. Generally speaking, there are no changes in evening and night station-to-station rates corresponding to those in day station-to-station rates.

On person-to-person calls there is a decrease for some distances between 80 and 96 miles while beyond 96 miles all rates are reduced. On such calls for distances between 30 and 80 miles there is either a small increase or no change.

For example, the person-to-person rate from Des Moines to Davenport is reduced from $1.55 to $1.25; from Council Bluffs to Des Moines from $1.20 to $1.05, and from Sioux City to Clinton from $2.95 to $2.15. The former rate of 75 cents on a person-to-person call from Cedar Rapids to Clinton is increased to 80 cents, and from Muscatine to Iowa City from 35 cents to 40 cents.

On station-to-station calls the decreases are effective for some distances between 112 and 152 miles and for all calls for distances beyond 152 miles. The increases are effective for some distances between 30 and 112 miles.

Where increases are made, the maximum increase in both station-to-station and person-to-person rates is only 5 cents, except for a few person-to-person calls on which the increase will be 10 cents.

For more than 80 per cent of the toll calls in Iowa, there will be no change in rates.

Northwestern Bell Rates Increased in Sioux City, Iowa.

Increased telephone rates in Sioux City, Iowa, became effective July 1. The revision of the rates was made to distribute more equally charges for various services and to provide additional revenue made necessary by extensive telephone improvements in Sioux City, James A. Rae, division manager of the Northwestern Bell Telephone Co., said.

The new schedule of rates includes increases ranging from 25 cents to $1 a month. A new four-party residence rate was established, enabling those who can use limited service to obtain it for $2.25 per month, 25 cents cheaper than the former two-party rate.

The new and old rates for the various classes of service, deducting the 25-cent discount given for payment of bills before the 10th of the month are as follows:

Classes of Service	Old	New
Business, one-party	$6.00	$7.00
Business, two-party	5.00	5.50
Residence, one-party	2.75	3.25
Residence, two-party	2.50	2.75
Residence, four-party	....	2.25
Rural	2.00	2.25
Service station (yearly)	6.00	9.00

Court Upholds Company's Right to Disconnect Delinquents.

Any member of the Citizens Mutual Telephone Co., of Bloomfield, Iowa, who does not pay his long distance charges within 30 days after they are due is liable to have his telephone disconnected and services denied him until such charges are paid.

This is the ruling of W. M. Walker, judge of the district court, in an opinion handed down recently after a hearing on a motion to dissolve a temporary injunction in the case of Verne J. Schlegel vs. Citizens Mutual Telephone Co.

Mr. Schlegel refused to pay a long distance charge on a call made over his office telephone and the telephone company, pursuant to its by-laws, disconnected his office telephone.

Mr. Schlegel obtained a temporary injunction enjoining the telephone company from disconnecting the telephone and the company, through its attorneys H. C. & H. C. Taylor, filed a motion to dissolve that injunction. The court sustained the motion and dissolved the injunction and in its opinion stated that the telephone company was acting within its rights when it disconnected Mr. Schlegel's telephone because of non-payment of toll charges.

The court stated that the telephone company had the right to protect itself by passing a by-law providing for the discontinuance of service to delinquent members, and that it also had the right to enforce such a by-law by disconnecting any such delinquent telephone.

Southern Bell Company Freed of Heavy Recording Tax.

The Southern Bell Telephone & Telegraph Co. does not have to pay a mortgage recording tax on bonds aggregating $15,762,700 deeded to it by the Cumberland Telephone & Telegraph Co., the Kentucky Court of Appeals ruled on June 21.

The court, in affirming the decision of the Jefferson Circuit Court, said that since no lien was retained upon the properties conveyed by the Cumberland to the Southern Bell, it did not require the payment of the mortgage—recording tax of 20 cents per $100, as contended by Fred Neutzel, Jefferson county clerk, who declined to record the deed when it was presented to him to be recorded, unless the mortgage recording tax was paid.

Though the obligation to pay the debt secured by the lien passes by assignment from the original obligor to another, the tax is due but once, the court said.

Northwestern Bell Authorized to Increase Rates at St. Cloud.

The Minnesota Railroad & Warehouse Commission has authorized the Northwestern Bell Telephone Co. to increase its rates for service at the St. Cloud exchange.

The old and new monthly rates of the company are:

	Old	New
Individual line business	$4.50	$5.25
Two-party line, business	4.50	4.25
Individual line, residence	2.75	2.75
Two-party line, residence	2.50	2.25
Four-party line, residence	2.25	2.00
Service station switching (per annum gross)	6.00	7.00

A discount of 25 cents is to be allowed on the local gross rates if the bill is paid, including the subscriber's entire account, on or before the 15th day of the month in which the service is rendered.

A discount of $1 from the annual service station switching rate if paid during

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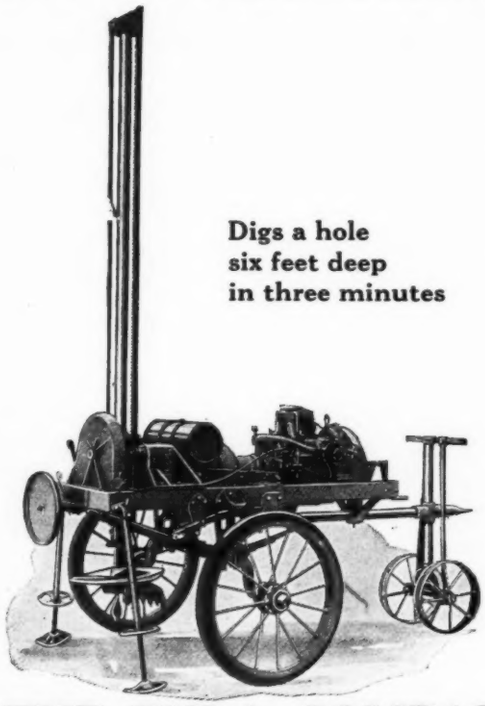

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the first month of the 12 months for which the bill is rendered.

The petitioner submitted exhibits covering operating statements for the year 1924 and for the first nine months of 1925. Upon request, the commission was furnished with a complete operating statement for the entire year of 1925.

The company also presented an appraisal of the property constituting its St. Cloud exchange as of September 1, 1925, in which the reproduction cost new was shown to be $454,292.47, and the reconstruction new value depreciated, $453,262.86, the latter figure including $8,964.83 for working capital and $48,609.29 for going concern value.

The operating revenues of the St. Cloud exchange for the year 1924 were $98,685.16, the operating expenses, including depreciation and taxes, $82,631.82, leaving a net income of $16,053.34. The company's investment in the St. Cloud exchange as of December 31, 1924, was $342,640.63. The operating revenues for the first nine months of 1925 were $78,585.53, the operating expenses, including depreciation and taxes for the same period, $68,387.00, leaving a net income of $10,198,53. The company's investments as of September 30, 1925, was $357,736.73. The actual operating revenues for the year 1925 were $105,-720.65, the operating expenses, including depreciation and taxes, $91,692.79, leaving a net income of $14,027.86. The investment as of December 31, 1925, was $370,-218.47.

The exhibit presented by the company showed the estimated operating revenues at the petitioned rates on the basis of subscribers in service for the year 1925 to be $117,534.65, the operating expenses, including depreciation and taxes, $94,073.46, leaving a net income of $23,461.19.

The commission's statistical department made a careful examination and analysis of the exhibits presented, resulting in changes in certain of the operating expense accounts. These changes would have the following effect on the operating statement for the year 1925 at the petitioned rates: operating revenue, $117,534.65, operating expenses, including depreciation and taxes, $89,755.35, leaving a net income of $27,779.30.

In connection with the state-wide rate case which was before the commission a few years ago, in a distribution of the fair value of the company's property as a whole in the state of Minnesota, there was found for the St. Cloud exchange as of December 31, 1920, a present value of $312,263.29. Applying to this value the additions and retirements to the St. Cloud exchange property from January 1, 1921, to December 31, 1925, this figure to $393,393.36.

The commission would not at this time approve an increase in the service station switching rates upon the showing made.

Upon review of the fact, the commission found that the existing rates were unreasonable and that the petitioned rates, except that rate applying to service station switching, were fair and reasonable and would not yield more than sufficient revenue to provide for the necessary operating expenses, depreciation, and a fair return upon a fair value of the property.

The Northwestern Bell company was, therefore, authorized to place in effect an increased schedule of rates, effective July 1.

Withdraws Application When Analysis Shows Inadequacy.

Secretary Ratcliffe of the Dundy County Mutual Telephone Co. is not so sure that he desires the increased rates for which he recently applied to the Nebraska State Railway Commission, and has withdrawn the application.

He now asks that the present temporary rates be continued in effect until January 1, 1928. He also asks that the commission authorize the payment of a total dividend of $70 monthly to the holders of the $10,-500 worth of stock. He says that it was desired to increase the low wages of operators, but that a confusion of accounts makes it inadvisable to seek the rate increase now.

In checking over the application, Secretary Kloidy, of the Nebraska Telephone Association, discovered that while on the face of the figures they showed the present rates were yielding 20 per cent profit, the manager was not paying himself any salary and other inadequacies were also discovered. He will readjust the accounts and put them in such shape that the application to be made later will more reasonably represent actual operating conditions.

The Index for Volume 92 of Telephony.

The index for Vol. 92 of "Telephony," which was completed with the issue of June 25, 1927, is now ready for distribution among those who keep complete files.

In this index are listed all of the important articles which have appeared between January 1 and June 25. It will be supplied free of charge to those making application.

Asks for Ruling on Payment for Rural Lines Purchased.

The Stanton Telephone Co., ordered some months ago by the Nebraska State Railway Commission to cease its practice of requiring farmers to construct and maintain stub lines, has asked the commission for advice as to how it shall proceed where patrons are obdurate in the matter of agreement as to price.

The company is offering payment on the basis of 8 per cent depreciation of cost per year the line has been up. Some have accepted this, and some will not, demanding that it repay them the full cost of the material put in place. The company desires to treat all alike, and asks for a ruling. It has purchased and rebuilt over 200 of these stub lines to date.

Commission Offers Services to Prevent Subscribers' Strike.

The Nebraska State Railway Commission proffered its good offices to prevent a strike of telephone patrons at the exchange of the Osmond Telephone Co., where patrons served notice that unless an improved service is given them they would all quit on July 1.

The owner, a new man, says that the present rates are inadequate, and that he will not improve the service unless the patrons agree to pay more money. The patrons won't agree to do this unless he improves the service, and maybe not then.

The commission advised the protesting patrons that if they would file a formal complaint on the form presented to them, this would give the commission jurisdiction to hold hearing and make the proper order in the premises. This will also open the way to the owner to make his request for higher rates and have it passed on in due order.

Asks Commission to End Abuse of Free Service.

The Palisade Telephone Co. has finally joined with the Wauneta Telephone Co. in an application to the Nebraska State Railway Commission for an order to put an end to a free service abuse that has been made possible because both companies have lines running into Hamlet, by way of rural connections.

The Frenchman Valley company, a mutual, also serves this territory, and by operation of a knife switch beyond the control of the complaining companies, the Wauneta company finds itself furnishing service to 30 stations that are not subscribers to it and which pay nothing.

The Palisade company is similarly situated with respect to other telephone users, and while reluctant to get into a row with neighbors, has finally asked for proper relief.

Asks for Increased Rates Under Unusual Schedule.

The Dundy County Mutual Telephone Co., through its manager and secretary, has asked the Nebraska State Railway Commission for authority to increase rates, asserting that the present schedule is unremunerative. The exchange is located at Benkleman, but it has free interchange with the May exchange and its farm lines. Mr. Ratcliffe ignores the usual spread of 25 cents between wall and desk service, and submits an unusual schedule for ratification.

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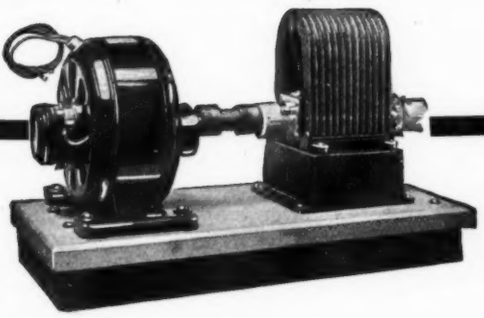

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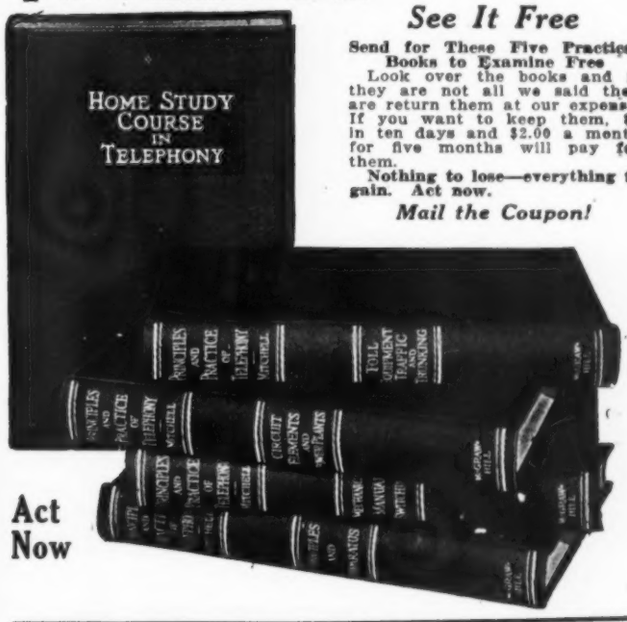

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Patrons of Rural Lines Complain Regarding Service.

Patrons of the rural lines of the Hazard Telephone Co. have lodged vigorous complaint with the Nebraska State Railway Commission against the existing conditions of service, claiming that lines that go down are not promptly taken care of.

The commission has sent Engineer Taylor to the scene to check up on the service and arrange an amicable adjustment of the differences between company and patrons.

Asks Validation of Rates Charged But Never Approved.

Application has been filed with the Nebraska State Railway Commission by the Palisade Telephone Co. for the validation of the rate schedule at its Hamlet exchange. It says it finds that these rates have never been approved by the commission, and it desires this action taken now.

Max Niemann, the manager, says that he would also like permission to keep the exchange open between 6 a. m. and 9 p. m. and to close it on Sundays between 1 and 5 o'clock in the afternoon. The rates asked for are: Business, $2; residence, $1.50, and switching, 45 cents a month.

The files of the commission show that seven years ago it sought to get the company to file rates for Hamlet, but that it never answered the last letter. Other letters in the file show that Mr. Niemann said at one time that the exchange was not paying expenses, and that at another time he had but 13 subscribers there.

Bonds Authorized But Proportion Between Stock Maintained.

The Blair Telephone Co. has been given authority by the Nebraska State Railway Commission to issue $60,000 of its 6 per cent bonds, but must retain $28,000 of them in its treasury until further order of the commission.

Of the $32,000 bonds authorized, the company is to use the proceeds to pay for betterments and extensions to plant made after April 30 and to pay off $24,017.06 of notes payable. Within 30 days it shall make report of the disposition of the bonds and the proceeds.

In the purchase of the Northwestern Bell Telephone Co.'s property in Blair and consolidating the exchanges, a substantial expenditure of funds was made, and it is desired to clean up the notes and bills payable issued for them. The commission found that as the company has but $48,200 of common stock, a $60,000 bond issue would be in violation of the stocks and bonds act; hence the curtailment of the request of the company to a $32,000 issue, which maintains the relationship between bonds and stock fixed by law.

Applicant company bought the Bell property for $12,000 and still owes $9,000 of this amount, together with $15,000 for additions and betterments in place, and has material on hand that will bring the total rehabilitation cost to $50,000.

New Knoxville, Ohio, Company Authorized to Reissue Stock.

The New Knoxville Telephone Co. was authorized recently by the Ohio Public Utilities Commission to issue 100 shares of its common capital stock of the par value of $100 per share; this stock to be exchanged, share for share, for the present outstanding stock of the par value of $75 per share, and the stock so redeemed cancelled and destroyed.

The commission found that for capitalization purposes the applicant's property account showed a value of not less than $10,000; that the issue by applicant of 100 shares of common capital stock of the par value of $100 per share in reorganization of its capitalization now represented by 100 shares of common capital stock of the par value of $75 per share, was reasonably required.

Work on Investigation of Ohio Bell to Proceed.

The unexpended balance of $50,000 set aside by the Ohio General Assembly to continue the investigation of the Ohio Bell Telephone Co., which it was feared would not be available after July 1, because of the lapse of the appropriation, will be available for the Ohio Public Utilities Commission to continue the investigation, according to an opinion of Attorney General Edward C. Turner.

The statement was made following a conference with James W. Huffman, a member of the commission, who desired to know if the investigation which has been in progress for more than a year can be continued.

Under the provisions of the law, unexpended portions of appropriations would have lapsed July 1, unless it is encumbered, speaking in legal terms. The attorney general held that the $50,000 was encumbered and thus could be used. Mr. Huffman said that approximately $9,000 of the $50,000 had been expended.

Attorney General Turner reports that he has devoted several days to a personal study of the case and that he does not expect to leave all of the state's side of the controversy in the hands of special legal aids employed by the state. He expects to devote much of his time to the work.

The Ohio Utilities Commission has arrived at a point where briefs have been filed and time has been permitted for exceptions to be taken. Attorney General Turner has employed Harry R. Allensworth, of Columbus, as an engineer to check over the valuation of the telephone properties of the company in the state, as submitted by the company engineers, as well as the valuation on the same property, submitted by the special engineer employed by the commission. This checking may result in additional hearings on the matter.

The commission has arrived at the point where it is ready to place a tentative valuation on the property. The next step will be to divide this valuation among the various telephone units within the state for the purpose of arriving at a reasonable rate for all of the companies in the Ohio Bell system.

Brother-In-Law Wants to Know About His Status.

Can a brother-in-law be considered a part of one's family? The Washington department of Public Works must either rule affirmatively or find an excuse for dodging the issue.

The owner of an East Side telephone system has been trying to enforce an iron-clad rule that patrons must pay an extra fee whenever their telephone is used by someone outside the family. A boarder, for instance, is permitted to receive incoming calls, but if he tries to telephone a friend, the patron has to pay for it. And if a patron obligingly telephones an order for groceries to be delivered to a neighbor, he has to pay for the courtesy.

In some uncanny manner each telephone message is analyzed and now has arisen the case of Mr. Brother-in-law. It seems he owns the house where his sister and her husband reside and when in town usually stays with them. He also pays some of the telephone bills.

Nevertheless the owner of the telephone system says that he is only a relative and not a member of the family, and, therefore, must pay extra for his messages. The brother-in-law asks the department to define his status.

Summary of Commission Rulings and Schedule of Hearings.

ILLINOIS.

June 8: Petition denied of the Illinois Southern Telephone Co. for a rehearing in matter of proposed advances in rates for service covering toll service in Belknap, Cypress, et al, in Johnson and Pulaski counties, respectively, stated in supplement No. 1 to Ill. C. C. No. 1, filed by the company.

June 8: Petition denied of the Illinois Southern Telephone Co. for rehearing on

its authority to discontinue exchange in New Burnside, Johnson county.

June 8: Petition denied of the Illinois Southern Telephone Co. for rehearing on its authority to discontinue exchange at Belknap, Johnson county.

June 8: No action taken on these schedules: Farmers Mutual Telephone Co. of Tazewell county toll rate schedules for Trement, Morton and Groveland, effective June 31, 1927.

Boynton Telephone Co. rate schedule Ill. C. C. 1, applying to toll service for Pleasant Plains, New Berlin and toll stations, Sangamon county.

June 9: Order approving lease by the Chicago & North Western Railway Co. to the Illinois Bell Telephone Co. of certain land near DeKalb station in DeKalb county, described in order, for three months, beginning April 30, 1927, at $10.

June 28: Hearing at Chicago before Chairman Jackson on the motion of the commission in the matter of citation to show cause in the matter of what, if any, charge additional to the existing exchange rates shall be made for service in Chicago and other communities served by the Illinois Bell Telephone Co. for the use of hand telephone sets.

June 28: Hearing at Chicago before Commissioner Trovillion on the motion of the commission in the matter of citation to show cause, if any, in the matter of what additional charge in the existing exchange rates in Belvidere shall be made for service rendered by use of hand telephone sets by the Belvidere Telephone Co., as set forth in rate schedule Ill. C. C. No. 4, original sheet No. 6.

June 28: Hearing at Chicago before Commissioner Trovillion on the motion of the commission in the matter of citation to show cause, if any, in the matter of what additional charge in the existing exchange rates in the territory served by Southwestern Bell Telephone Co. should be made for service rendered by use of hand telephone sets by company, stated in rate schedule Ill. C. C. No. 1, first revised sheet No. 1, miscellaneous equipment section.

June 28: Hearing at Chicago before Commissioner Kuhn in the matter of proposed advance in rates for service of the Middle States Telephone Co. in Park Ridge and Des Plaines, as stated in rate schedule Ill. C. C. No. 1, of company.

July 7: Hearing at Springfield in the matter of proposed rates for toll service between exchanges of the Illinois Telephone Co., Jacksonville.

INDIANA.

June 16: Hearing at La Porte in the matter of the increased schedule of the La Porte County Telephone Co.

MINNESOTA.

July 8: Hearing at Glencoe in the matter of the application of the McLeod County Telephone Co., Glencoe, for authority to change its schedule of rates at its Glencoe, Brownton, Lester Prairie, Silver Lake, Buffalo Lake and Stewart exchanges.

MISSOURI.

June 3: Freeburg Telephone Exchange, found to be public utility and subject to jurisdiction and control of commission. The Freeburg company will be required to file a schedule of rates to be charged its subscribers and rules governing its relationship with its patrons, subject to approval of the commission.

June 21: E. C. Hunt of Blair, authorized to purchase and operate six telephone properties in six north Missouri cities. The properties are: Frankfort Telephone Co. of Frankfort, for $6,000; The Clarence Telephone Co. of Shelby county, for $40,000; Edina Telephone Co., of Edina, Knox county, for $40,000; Shelbyville Telephone Exchange of Shelby county, for $27,950; The Downing Telephone Exchange of Downing, for $16,500; Shelbina Telephone Exchange of Shelby county, for $45,000.

NEBRASKA.

June 20: Application filed by Palisade and Wauneta Telephone companies asking discontinuance of certain free service.

June 21: Application filed by Northwestern Bell Telephone Co. for permission to raise rates at its Sidney exchange if and when it changes from magneto to common battery service.

June 21: In the matter of the application of the Platte Valley Telephone Corp. for authority to issue certain securities in connection with financing its purchase of the Platte Valley and Wehn Telephone companies; ordered that authority issue for the sale at not less than 93½ of $600,000 worth of 30-year 6 per cent gold bonds, $250,000 of prior preferred 7 per cent stock, and $150,000 of preferred stock to be sold at not less than 93½, the whole netting $935,000.

June 22: Application filed by Northwestern Bell Telephone Co. for authority to change base rate area at its Alliance exchange, in order to take in territory outside the city limits and charge the following rates: Business, individual, $4.75; two-party, $4.00; residence, individual, $2.75; two-party, $2.25 and four-party, $2.00; farm, $7.60, with customary discounts for advance payments.

June 22: Application filed by the Northwestern Bell Telephone Co. for authority to cancel rates for incoming lines and stations at its Fullerton and West Point exchanges, there being no public demand for such service and none now being offered.

June 22: In the matter of the applica-

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tion of the Monroe Telephone Co. for authority to discontinue magneto service at its Albion exchange; it appearing that of the 550 stations only two demand this service, that it is unsatisfactory, that these now pay $1.65 a month and have the opportunity to take four-party common battery service at $1.50 or individual for $2.00; held, that it is unreasonable to require such service to be given, and ordered that the company be given authority to discontinue it.

June 23: Application filed by Grant Butler, secretary of the Merriman Mutual Telephone Co., asking for an increase in rates of business service from $1.25 to $2.00; residence from $1.00 to $1.50 and farm from 50 to 75 cents, it being represented that this is necessary in order to provide for rebuilding and for emergencies.

June 24: Application filed by Republican Valley Telephone Co., of Franklin, for increase of switching rates from $4 to $6, payable six months in advance; for authority to make certain charges against lines instead of individual members of mutuals served and for pin space charge of 10 cents per year.

June 24: Request filed by Secretary Ratcliffe of the Dundy County Mutual Telephone Co., asking permission to withdraw application for increased rates, and for authority to continue the present temporary rate schedule into effect until January 1, 1928.

NEW YORK.

June 22: Hearing on protest of McLean Heights subscribers over the New York Telephone Co.'s proposal to shift its service from the Woodlawn to the Mt. Vernon exchange.

OHIO.

June 7: The New Knoxville Telephone Co., New Knoxville, authorized to reissue stock at the increased par value authorized.

June 14: Joint application made by the McArthur Telephone Co., McArthur, and the Logan Home Telephone Co., Logan, for authority for the former to sell its property and business to the latter for $35,000.

OKLAHOMA.

June 30: Hearing on application of M. A. Goodson, Jr., to discontinue free service between Dale and Shawnee.

MISSOURI.

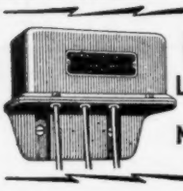
June 14: Application filed by the Inter-County Telephone Co., Stewartsville, De Kalb county, for authority to issue $200,000 for its common stock to be sold at par, of which $85,000 is to be paid as the purchase price of the property of the De Kalb Telephone Co., the remainder to be sold for cash. The Inter-County company also applied for a certificate of public convenience and necessity to operate the two systems at Stewartsville and DeKalb.

WISCONSIN.

July 7: Hearing at Wilton on the application of the Ontario & Wilton Telephone Co., of Wilton, for authority to revise its rules and increase rates.

July 13: Hearing at Madison on the application of the Belmont & Pleasant View Telephone Co., of Belmont, for authority to increase rates.

July 19: Hearing at Madison on the application of the Pewaukee-Sussex Telephone Co., of Pewaukee, for authority to increase rates.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